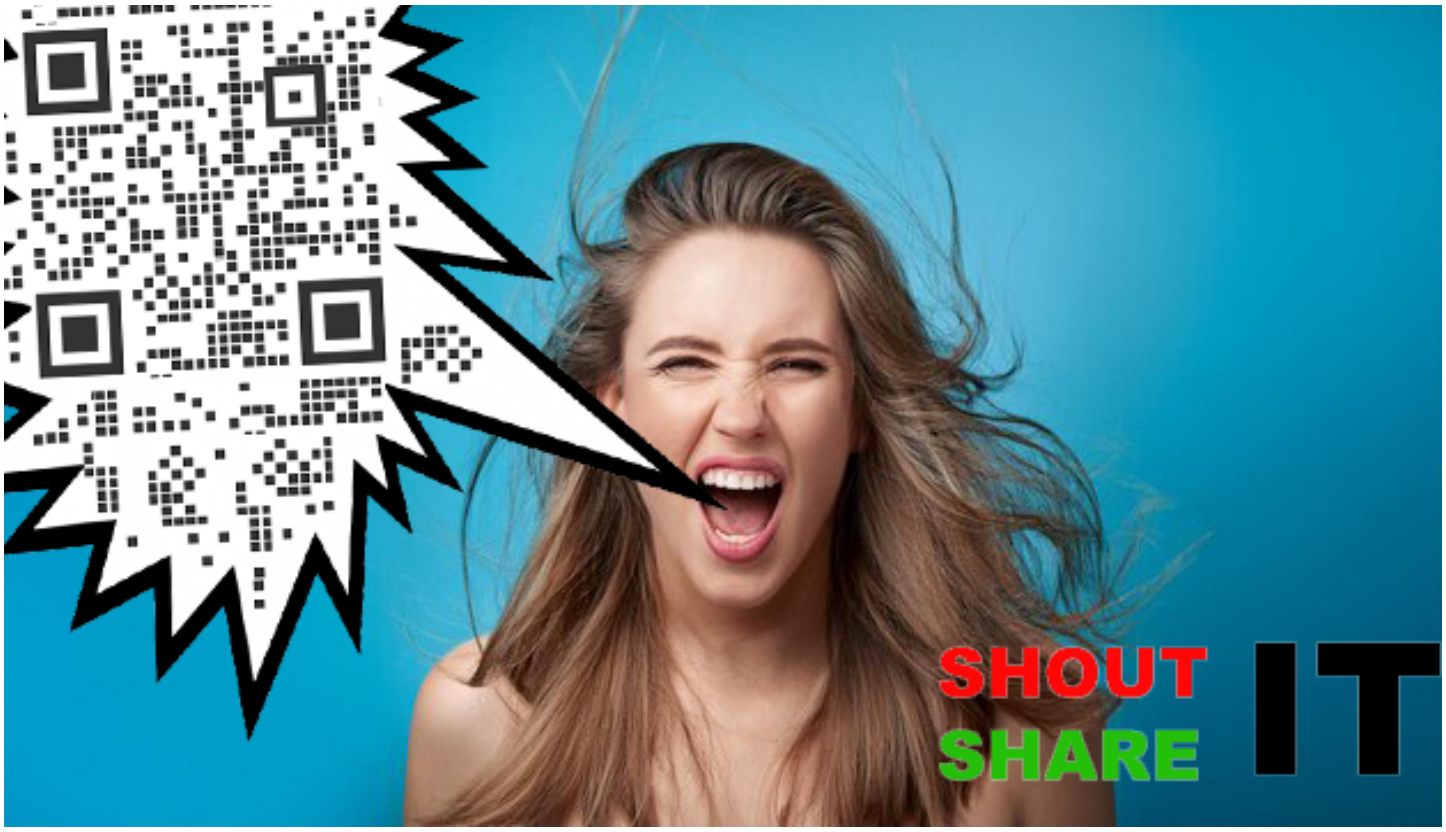

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The Rural Text-Book Series

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THE BREEDS OF LIVE-STOCK

The Rural Text-Book Series

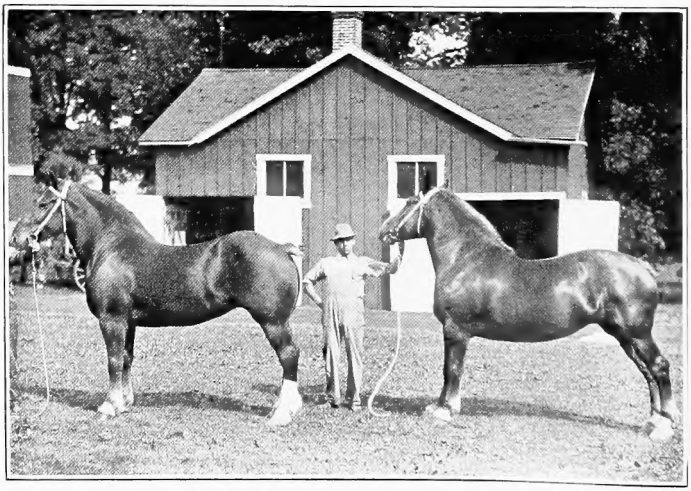
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PLATE I. — Breed Types of Horses.



Percheron Stallion.



Belgian Mares.

THE BREEDS OF LIVE-STOCK

BY

LIVE-STOCK BREEDERS

REVISED AND ARRANGED BY

CARL W. GAY

PROFESSOR OF ANIMAL INDUSTRY IN THE UNIVERSITY OF PENNSYLVANIA

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PREFACE

THE original material of which this book is composed was prepared for the Cyclopedia of American Agriculture, Volume III, by men who have been more or less eminently identified with the respective breeds of which they write. Since successful breeders are essentially specialists in their particular breeds, the most authoritative presentation of the historic facts, points of merit and economic importance of these breeds should be expected from those breeders who have devoted themselves most exclusively to them.

This subject-matter has been revised, rearranged, amplified and brought up to date with the view of making a book that shall serve as a hand-book for the breeder and a text-book for the student. The revision has been made by Dr. Carl W. Gay, Professor of Animal Industry in the University of Pennsylvania, a teacher and investigator of wide experience and an author of high standing. The revisions of the different parts have been approved by the original authors, so far as living; and the book therefore has double authority, the advantage of statements made by persons who are identified with the different breeds, and a comparable treatment throughout. Only the descriptive parts of the original articles have been utilized in making this

book; for the completer accounts and for the score-cards, the reader is referred to the Cyclopedia, which was published in 1908. Score-cards of the breeds will also be found in Gay's "Principles and Practice of Judging Live-Stock," Rural Text-Book Series.

L. H. BAILEY.

ITHACA, N. Y.,
January 1, 1916.

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THE BREEDS OF LIVE-STOCK

THE BREEDS OF LIVE-STOCK

INTRODUCTION

THE STUDY OF THE BREEDS

In this era of improved live-stock husbandry it is more the exception than the rule to find horses, cattle, sheep, hogs and even chickens that do not show the distinguishing characters of some breed predominating their physical makeup. The true mongrel of nondescript breeding is in the minority. How has this come about? Does it reflect, in exact measure, the success of the breed associations and others in their efforts to promote the interests of their respective breeds, or a general sentimental preference for the pure-bred sire? Neither — it is an economic problem. The most convincing basis upon which to argue is one of dollars and cents and the grade has demonstrated itself to be a better business proposition than the mongrel. It is more reasonable to suppose that a cow, for example, which has inherited from her sire, if not from her dam also, the cumulative high production that has been sought through a long line of ancestors, will be more productive than one whose incentive to give milk is merely incident to maternity.

With a variety of breeds, each endowed with greater proficiency for some special performance or production, the grade has become the only animal worth feeding. Competition in the marketing of products, high-priced

feed and labor increasing the cost of production and rendering more imperative the economic efficiency of the animal machine itself, affords the strongest argument in favor of the high grade animal.

The breeding of pure-bred live-stock is too often regarded as beyond the concern of the average breeder. While he may not be equipped to engage in it himself he must be an indirect patron of the pure-bred stud, herd or flock if he is to succeed in his business of marketing animals or their products. Furthermore, the high grade animal embodies to such a great extent the characteristics of the breed from which it is derived as to make the study of the breeds of as much importance to the breeder of grades as to the breeder of pure-breds.

Cross-breeding is legitimately practiced to some extent, but skillful use of the blood of the breeds crossed requires intimate knowledge of their inherent possibilities. Failure to reckon with these invisible hereditary forces may result in some of the most unexpected occurrences with which all cross-breeding is more or less fraught.

Study of the breeds should be undertaken, however, with the proper motive and from the correct point of view. Each breed has its advocates and it is well that this is so, but it is not advisable to "vote on principle" in breeds as is done in politics. A blindly partisan allegiance to any breed may lead a breeder wide of the mark that he is striving to attain. An intelligent choice of a breed involves first, recognition of the conditions to be met, such as markets, facilities with which to cater to their demands, the existence of community sentiment and reputation, and finally personal fancy; second, knowledge of the special adaptability of the respective breed to meet the conditions imposed.

The distinctive characters of each breed are the result of definite factors operating during the formative period of the breed. The chief of these are the origin, which determines their hereditary bent; the environment, including the location, topography, nature of the soil and vegetation; and the ideals to which the breeders have selected, governed, of course, by the type of farming or industry in which they are engaged. Any one exclusively, two or all may be chiefly responsible for the types that prevail in the different breeds.

The study of the breeds is most comprehensively conducted, therefore, under the following headings: Introductory statement; history, both ancient and modern, the latter dealing with the breeds in this country especially, in the case of foreign breeds; a description of the typical representative; the uses to which his breed characteristics best adapt him; his distribution throughout the world as the result of his adaptability and usefulness; the organizations which promote the interests of the breed and record the pedigrees; and finally, the best sources of additional information concerning each breed.

Breeds of live-stock, unlike many of the poultry breeds, for instance, have been builded on a utility basis and they can, therefore, be grouped according to the types to which their representatives conform. Types, it should be understood, are market or producer's creations, differentiated on the principle that a distinct form is correlated with a definite function.

All members of a group possess the type characters in common, while the features by which the members of the type group may be distinguished constitute the breed characters.

PART I

THE BREEDS OF HORSES

THE breeds of horses may be classified according to the type to which their best representatives conform as follows:

Draft Page 7	Percheron French Draft Belgian Clydesdale Shire Suffolk
Heavy Harness Page 44	Hackney French Coach German Coach Cleveland Bay and Yorkshire Coach
Light Harness Page 79	American Standardbred Trotting Standardbred Pacing Orloff
Saddle Page 108	Thoroughbred American Saddle Horse Arab Barb and Turk Hunter
Pony Page 157	American Ponies of the British Isles Other Ponies
Mules and Jacks Page 181	
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CHAPTER I

THE DRAFT BREEDS OF HORSES

ALL individuals representing the following breeds should possess primarily the low station, wide, deep, compact, massive and big-boned form typical of the drafter. Sharp contrast should be made between these features, which are common to all the breeds in this group, and the distinctive features or marks possessed by each breed in particular and by means of which they are differentiated.

PERCHERON HORSE. Plate I.

By *Charles F. Curtiss* and *John A. Craig*

1. The Percheron breed of draft horses is native of the ancient province of La Perche, a territory about one hundred miles square, in the north-central part of France. This region lies in the heart of a fertile farming country. The land is high and rolling, the soil is fertile and the farms are watered by numerous springs and small streams. These springs and brooks give rise to some eight or ten rivers flowing into the English Channel on the north and the Atlantic Ocean on the west. The numerous valleys are rich and they produce sweet, nutritious grasses and bountiful crops of grain. The climate is mild, yet sufficiently tonic and invigorating to produce horses of good temperament. The land is held mainly

by tenant farmers who are frugal and thrifty, and good tillers of the soil. The natural conditions of this region all combine to make a most favorable environment for this widely known and popular breed. Among the breeds of draft horses that have been imported to America from France, the Percheron leads both in numbers and in popularity.

2. History in France. — France has long been noted for good horses. The horses of France, like those of other countries, were first improved for the purpose of war. The Flemish blood was largely drawn on in early times and importations of oriental blood were made at a very early date. This blood was infused with the native horse stock of France, which may have been Flemish in its origin. The oriental blood imparted a degree of refinement and finish that has ever since characterized the modern draft-horse stock of France.

Since 732, when the French defeated the Saracens and captured their horses, infusions of Arabian blood have been made, and the subsequent use of Arabian stallions on the native mares continued as late as 1820. In this way, a foundation was laid for a breed of horses possessing activity, quality and strength. The extension of railroads, reducing the use of the omnibus, seems to have diverted the breed towards a heavier type. This led to the use of Flemish stallions. The conditions of La Perche being favorable for the growth of strong, active horses, the breed started in this way made very rapid progress. There are some features of French management that may have had an influence also in directing the development of the breed. It is a common practice to work the stallions, and this may have been a factor of some effect on their dispositions, making them more amenable to work.

It should be said that the French government recognizes several breeds of draft horses, but the Percheron and the Boulonnais are apparently the only two that may be considered pure, as they have stud-books separate from the others. In addition, there are the Breton, Nivernais and Ardennais, all of which may be recorded in the General Draft Stud-book of France. [These breeds are discussed on pages 18–20.]

In addition to controlling the matter of registration, the French government has a system of inspection, which in some degree assists its horse-breeding interests. The veterinary inspection, however, is limited to periodic ophthalmia or moon blindness and roaring or thick wind. Johnstone (The Horse Book) states that there are only two maladies for possession of which approval, authorization or certification is refused in France — periodic ophthalmia and thick wind. This being so, the branding system carried out by the French government does not carry so much weight as is commonly supposed, for inspection apparently only discriminates against these two diseases, and there is nothing in the law to prevent any breeder using such unsound stallions on his own mares. The author referred to states further, that when a stallion is pronounced free from the unsoundnesses named, he is branded on the neck under the mane with a five-pointed star. The colt must be over thirty months of age before he can stand for public service, and the certificate of freedom from these diseases covers only one year. If the colt fails to pass inspection for these diseases, or if the diseases develop after the inspection, then the letter "R," meaning refused, is branded over the five-pointed star. These are the only brands used by the French government.

The French Percheron Society, however, uses a brand that is put on all stallions and mares recorded in its stud-book. It is a monogram of the letters S. and P., the initials of the society. It is branded on the neck under the mane.

After successfully passing the inspection, the horses are classified in three grades. The first are known as "subsidized" or "approved," and to such a cash bonus is awarded to keep them in France on the owner's farm, and available to outside mares. The other two are "authorized" and "certified," neither of which carries with it any subsidy.

3. History in America.—The first importation to America was made in 1839, by Edward Harris, of Moorestown, New Jersey. The next importation was made in 1851, by Fullington and Martin of Milford Centre, Ohio. This importation was of far-reaching importance, although it consisted of but a single horse named "Louis Napoleon." This horse was sold and taken to Illinois in 1856, where he afterward passed into the hands of Mr. Dillon, of Normal, Illinois. "Louis Napoleon" stood fifteen and one-half hands high and weighed about sixteen hundred pounds. He was, perhaps, the most noted horse of the breed that has been brought to America. It is estimated that he sired over four hundred colts that were used successfully for stud purposes. In 1851 and succeeding years, other importations were made which helped to lay the foundation of the breed in America. In 1870, M. W. Dunham, of Wayne, Illinois, took up the importation, since which time he and his family have imported and bred Percherons very extensively. Through his efforts the breed has gained much popularity in America. Many other importers might be mentioned, but the list is now a long

one, as the importations of horses of this breed have been very extensive. The Percheron breed has made rapid progress in popularity in this country. It is the most numerous and the most generally popular of any breed of draft horses in America. This is accounted for chiefly by the degree to which the Percheron is adapted for the work on most of our farms, as well as to produce an active draft horse for the market.

4. Description of Percherons. — Nearly a century ago the aim of the breeders of horses in La Perche was to produce a medium-weight draft horse, suited in type and action for pulling a "diligence" or omnibus. At an early day, the demand existed in France for a horse that could haul a load at as rapid a rate as possible. At this time, the breed was represented by horses of upstanding type, somewhat rangy but strongly built, with attractive and unusual action for draft horses. They were then gray in color, and these were the first to be brought to America. While not so drafty in type as the modern Percheron, they were horses of superb style, full of vigor, and they had powerful action which enabled them to pull strongly and move quickly at the same time. In themselves, the gray Percherons of early days were unusual draft horses, and it was the degree to which they combined activity with pulling power that made the Percheron a very popular horse for farm work. But the demand in America became more insistent for a heavier, blockier, shorter-legged type, that would grade the produce of our lighter mares to a draft weight quicker. This demand resulted in the modern black Percheron of somewhat stouter build, deeper body, more weight, and as much quality as the prototype; but there was some sacrifice of style, standing or going, with somewhat less

attractive action. The modern Percheron approaches more closely the essentials of a draft horse to meet modern markets, but the old type had some qualities, such as style, endurance and activity, which were difficult to retain in a shorter and stouter built horse of more weight.

The present-day Percheron's excellencies are to be seen in the active temperament, intelligent head, deep body, wide muscular croup and clean-cut legs of the typical representative. The joints are usually clean and hard, and the legs invariably show an abundance of quality that guarantees durability; but frequently the set of the legs and, particularly, the shape of the hind-quarters, is at fault. A croup too sloping, with deficiency in muscle below, cannot give the greatest pulling power, especially when associated, as it often is, with legs that are improperly set, being either too straight, sickle-hocked or otherwise cramped in the hind-quarters. The Percheron is rarely deficient in quality and activity, and when the weight is sufficient to meet the demands of the modern draft-horse market, a draft horse of unusual excellencies is the result. The action of the Percheron is almost always quick enough for a draft horse, and the feet are generally picked up with snap at the walk; but these should not be allowed to overshadow desirable mechanical action, which is straight and distance-covering, although less showy and attractive.

In size, the Percheron ranges from fifteen and one-fourth to sixteen and one-half hands, and from 1500 to over 2000 pounds in weight. There are a number of medium size, although the largest take rank with the largest of any of the draft breeds. In France there is a type smaller in size than the medium. These are popu-

lar for general traffic and for bus and tram use in cities. The demand in the United States is for the larger types.

5. Uses of Percherons. — The Percheron has little use except as a draft horse and as a producer of grade draft horses. The usefulness of this breed for draft purposes is so well known that it is unnecessary to dwell on that feature. But it is well to call attention to the fact that a large proportion of our draft teams contain Percheron blood, and that the results which follow a cross of a pure-bred Percheron stallion on a mare of other draft breeds, or even on the heavier types of our common mares, are most excellent.

6. Distribution. — The Percheron breed has proved generally popular in nearly all parts of the United States, particularly in the farming regions where draft horses are raised for market. It is well adapted to farm conditions and meets with favor on the markets. Plumb (Types and Breeds of Farm Animals) quotes Weld as authority for the statement that in 1866 there were fully 5000 Percherons in this country. Illinois has been the chief center for the breed, with the adjoining states of Ohio, Iowa, Michigan and Wisconsin following with lesser numbers. The same author states that between 1851 and 1883 nearly 4000 Percherons were imported or bred in the United States, and these were distributed about as follows: Illinois, 1834; Ohio, Indiana and Michigan, 577; Wisconsin, Iowa and Minnesota, 424; New York, Pennsylvania and New Jersey, 280; Missouri, Kansas and Nebraska, 186. These figures are an index of the relative extensiveness of the Percheron breeding interests to-day, although it is likely the western states carry more compared with the others than they did at that early time. The southern states have become an

altogether new field for the Percheron, although not many of the breed have been brought into the South or into Canada, where the British breeds seem to be in more favor. Wilcox (Farm Animals) has stated that there are 30,000 registered Percheron horses in the United States, which is a larger number than any other draft breed.

7. Organizations and records. — In France, the interests of this breed are in the hands of Société Hippique Percheronne. It was organized in 1883, and in that year published its first stud-book. The Percheron Society of America has published sixteen volumes of the Percheron Stud-book of America, the first two volumes, however, having been published by the Percheron-Norman Horse Association. One hundred and eight thousand registrations have been made. The Percheron Registry Company has published three stud-books.

There have been many dissensions among the importers and breeders of French draft horses, leading to the formation of several societies and stud-books. It becomes necessary to discuss these, not because of any desire to state which were right or which were wrong, but solely for the purpose of explaining the status of the societies and stud-books at present representing the breed.

The first importations of draft horses from France to America were almost universally called Normans. There was no apparent reason for the name, for none of them came from Normandy. This name at that time was intended to embrace all the breeds of draft horses in France. Those importers bringing horses from La Perche considered the horses from that district the typical draft horses of France. The French government had not at that time established the Percheron stud-book (its publication was begun in 1883), consequently there was

more room for the discussion of the claim at that time than there is now. In 1876, when the importers of the French draft breeds organized and issued the first stud-book under the editorship of J. H. Sanders, a compromise was effected by the adoption of the title Percheron-Norman Stud-book. Some of the members withdrew, forming another association, which published the National Register of Norman Horses, and this was afterwards changed to the National Register of French Draft Horses. In this stud-book are registered all importations that are registered in the General Draft Stud-book of France. The Percheron-Norman Stud-book was changed to the Percheron Stud-book, and it is based on the Percheron Stud-book of France which, since 1885, has accepted for entry only horses whose ancestors are registered in the book. As the present stud-books stand, only pure-bred Percherons may be recorded in the Percheron Stud-book, while in the Register of French Draft Horses all the draft breeds of France, including Percherons, may be admitted. From this unfortunate diversity of stud-books, the Percheron Stud-book had reached the point of being recognized as the distinct representative of the Percheron breed, when internal dissension arose over the powers vested in the secretary. The outcome was a division into three associations that published stud-books. The American Percheron Horse Breeders' and Importers' Association was organized in 1902, but in 1905 this name was changed to the Percheron Society of America, with headquarters at the Union Stock Yards, Chicago. Also in 1904, the Percheron Registry Company was organized with headquarters at Columbus, Ohio. In 1905, the American Breeders' and Importers' Percheron Registry was organized, with headquarters at Plainfield, Ohio.

About March 1, 1911 the Percheron Society of America took over all the books, records and business rights of the Percheron Registry Company, issuing to each of the 206 members of the Percheron Registry Company one share of stock in the Percheron Society of America. The Percheron Society also recognized as registered horses the animals recorded by the Percheron Registry Company. The produce of animals with Percheron Registry certificates are not accepted for record, however, until the certificates for such animals are renumbered, rewritten and placed in shape for republication. This rule involves only those Percheron stallions bred to pure-bred mares. Practically all of the animals that were recorded in the Percheron Registry Company that had any produce have already been renumbered in the Percheron Society and most of their pedigrees have been rewritten. The present Percheron Society of America has more than 6700 members and paid in capital stock in excess of $70,000.

Literature. — Charles Du Hays, The Percheron Horse, New York (1868).

French Draft Horses. Figs. 1, 2.

By *W. L. Carlyle*

8. The northern part of France has been particularly fertile in the production of high-class horses of various types. This has been due in part to the character of the soil and climate and to the food on which they have been fed, and in part also to the taste and temperament of the people in this section. In addition to the Percheron and *Demi-sang Normand,* or French Coach horse, there have been developed in this region several

distinctive types or breeds ranging in characteristics from coach horses to the heaviest type of drafters.

These have been introduced into America simply as French draft horses. This has led to some confusion in the names, as there is no single French draft breed, but rather several distinct breeds or types of French draft horses. The French draft horse best known in America is the Percheron (see pages 7–16). Others less well known are the Boulonnais, Ardennais, Breton and Nivernais, which are here given brief treatment. The Picardy draft horse has been said to be a variety or type of the Boulonnais. By some writers it is held to be a Belgian breed.

9. Boulonnais (Fig. 1).—The Boulonnais breed originated in the Boulogne district in northeastern France adjoining Belgium. In common with the other draft breeds of France, the Boulonnais horses without doubt had their origin in the heavy Flemish horses. In their general characteristics they very much resemble the Percheron, so much so that it is impossible in the best specimens to distinguish one from the other. In recent years more animals of gray color are to be found among the Boulonnais than among the Percherons, and there has probably been less change and improvement in type in the Boulonnais breed than in the Percherons. They are not so large as the Percherons, and somewhat less

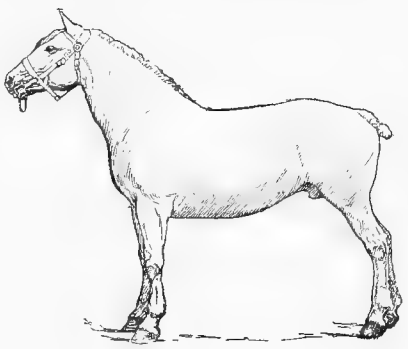


FIG. 1.—Boulonnais stallion.

refined, on the whole. The breed has an excellent reputation in its native country, where an association has been formed and a stud-book kept in the interest of the breed. It has been imported in large numbers to America and has more largely than any other breed made up what is known as the French draft breed.

The head of the Boulonnais is of good size, being broad in the forehead and with a larger eye than the Percheron, and somewhat more clean-cut about the lower part of the head. The neck is medium in length and clean-cut. The shoulders are laid well into the body and well-muscled. The body is compact and deep-ribbed, with short and broad back and well-muscled loins. The croup is inclined to be short and with a low-set tail. The hindquarters are muscular and broad with well-filled thighs. The legs and feet are free from superfluous hair and are possessed of excellent quality. Many Americans favor the feet of the Boulonnais in preference to those of any of the other French breeds. On the whole, the feet are larger, more rounded and the pasterns have more slope than the Percherons'. The colors are dapple gray, dark iron-gray, black, brown and occasionally chestnut.

This breed is growing in popularity in America, and its interests, together with other French draft breeds, are represented in the National French Draft Association of America, which publishes a stud-book. This Association was first organized as the National Norman Horse Association in 1876, but its title was changed to the one that it now bears in 1885. The Association thus far has published nine stud-books. The present headquarters of the Association are at Denver, Colorado.

10. Ardennais. — This draft breed or stock is a native of Ardennais, adjoining the Belgian frontier in

northeastern France, and resembles very much in type and characteristics the Belgian draft horse. It is a very blocky, compact breed of great usefulness for producing heavy farm "chunks," and one type is used largely as heavy draft horses. Individuals of this breed scarcely equal in size the Belgians, but are of the same general stamp. The heads are strong, with small eyes and ears, short, thick necks, heavy shoulders and short, thick and compact bodies. The legs are short, of fairly good quality, although the feet are high and narrow. The color of the Ardennais is more frequently chestnut and roan than anything else, although bay and brown are sometimes found. Gray is not common and is not looked on with favor. When imported into this country, horses of this breed are eligible for registration in the stud-book of the National French Draft Horse Association of America.

11. Breton (Fig. 2).—This breed of light draft or general-purpose horses belongs to Brittany, in the western part of France in a section of country that is much broken in surface.

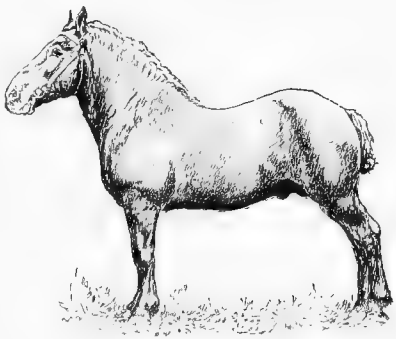


FIG. 2.—Breton stallion.

In general, these horses have intelligent heads, clean-cut necks of medium length, beautiful, round, well-muscled bodies with short backs and rather longer and straighter croups than the other French breeds, and with more quality in the legs and feet, the latter being large and more rounded in form

than the Percheron or the Boulonnais. In color they are dapple-gray, with very few exceptions.

Brittany has been prominent in horse-breeding for many years, although the animals bred are rather of a miscellaneous type. The Breton horses are exceedingly useful and of much the same general character as the old-style Percherons, but are smaller and more refined in type. Many of the Percheron stallions have been taken into this district in recent years in an effort to improve the breed in size and character. It is stated by some historians that English races have been introduced into this section, which possibly accounts for the more luxuriant growth of hair about the legs. Representatives of this type of horses are used very largely in France as omnibus horses in the cities. They have not been imported to this country to any great extent, probably owing to their lack of size and weight.

Representatives of this breed may be registered in the stud-book of the National French Draft Horse Association of America.

12. Nivernais. — The Nivernais is a breed of draft horses of French origin. The horses are of large size, with good length of neck, well-formed bodies of good length, massive shoulders and hind-quarters, and very strong bone, giving the legs a rather round appearance. They are uniformly black in color. Seldom, if ever, is a gray, brown or chestnut to be found.

This breed of horses has been developed in the Department of Nivernais, or Nièvre, in central France, and is one of the largest of the French draft horses. Its interests have not been very carefully looked after, and the choice specimens of the breed are not very numerous. It is only within the past nine or ten years that an associa-

tion has been formed in France for the keeping of records in the form of a stud-book. It is thought by Americans who have investigated the matter that the transformation in color and size in the Percheron horses in the past ten or fifteen years has been brought about, to some extent at least, by the use of the best types of Nivernais stallions from this district, crossed on the mares of the La Perche district.

Individuals of this breed have been imported to America in increasing numbers in recent years; it is classed as one of the French draft breeds. Individuals of this breed may be recorded in the stud-book of the National French Draft Horse Association of America on the same basis as are the horses of the Boulonnais breed.

Belgian Horse. Plate I. Fig. 3.

By *W. L. Carlyle*

13. The Belgian horse is fast becoming one of the most popular of the draft breeds.

14. History in Belgium. — In the early history of the Belgian breed of draft horses, no particular animals appear to have been prominent nor has any breeder of outstanding merit appeared. This breed, unlike most other draft breeds that have been developed, has been almost entirely the product of its environment. The small country of Belgium has a reputation as the home of draft horses extending back through several centuries. Many, if not all, of the draft breeds of Great Britain and France were greatly improved during their formative period by the use of the heavy Flemish horses, the early progenitors of the Belgians. Modern horse-breeding in Belgium, how-

ever, is of comparatively recent development. A revival of the interest in it was stimulated and developed with the establishment of government breeding studs in 1850. The Belgium government annually sets apart about $75,000 for the supervision and encouragement of draft-horse breeding in that country. By a system of prizes, and financial encouragement of individual breeders, as well as of the National Draft Horse Society of Belgium and the local fairs, it has had a very potent influence in the advancement of this breed. By every means, the government seeks to encourage the best efforts of individuals, and to discourage the exportation of desirable animals. The city of Antwerp, in Belgium, is noted throughout the world as possessing many of the finest specimens of draft horses to be found, and these horses are without exception of the Belgian breed.

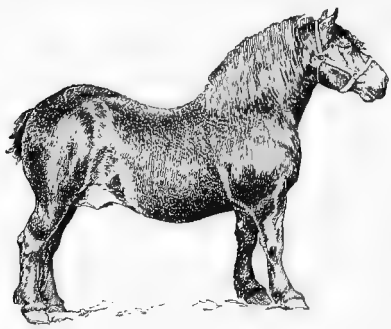


FIG. 3. — A Belgian stallion.

15. History in America. — The history of this breed in America is comparatively brief. The earliest importation was probably in 1886, when a few horses were imported into Illinois by A. G. Van Hoorebeke. They were at that time incorrectly termed "Boulonnais." Since 1887, large numbers of Belgian draft stallions have been imported into the United States and have been found exceedingly valuable for crossing on native grade draft mares. In 1888, E. Lefebure began importing and promoting the interest of the breed in this country. One

of the first firms to import these horses was D. P. Stubbs & Sons, of Fairfield, Iowa. Since 1897, there has been a large and constantly increasing demand for stallions of this breed. The leading importers have been A. B. Holbart and Lefebure & Sons, of Iowa; J. Crouch & Son, of Indiana; McLaughlin Bros., of Columbus, Ohio; Dunham & Fletcher, of Illinois, and H. A. Briggs, of Wisconsin. Very few mares were imported into this country at first for reasons that are not well understood. This was due partly to the fact that there was not the demand for the Belgian breed to encourage importing and breeding, as the trade was better satisfied with the Percheron and some of the English draft breeds; and partly because of the very high prices asked for Belgian mares abroad.

16. Description. — The Belgian draft horse is one of the most compact in form of any draft breed representatives found in America, possessing a maximum of weight with very short body set on short legs. He is broad, massive and well proportioned, as a rule. In quality the Belgian is somewhat lacking, the legs appearing round and rather coarse. The tendons of the legs are thick and not well defined. The skin is sometimes fine, although the hair is occasionally rather coarse and inclined to curl. The head is of good size, the nostrils are large and the eyes small and not very prominent. The ears are small, set wide apart and generally are not well carried. The neck is short, very thick and well crested. The shoulders are a little too upright, but strong and heavily muscled. The chest is deep and wide, giving a very large girth. The ribs are long, well sprung, and closely ribbed up to the hip, giving a better barrel than is found in any other breed of draft horses. The back is short, very broad and inclined to sag some-

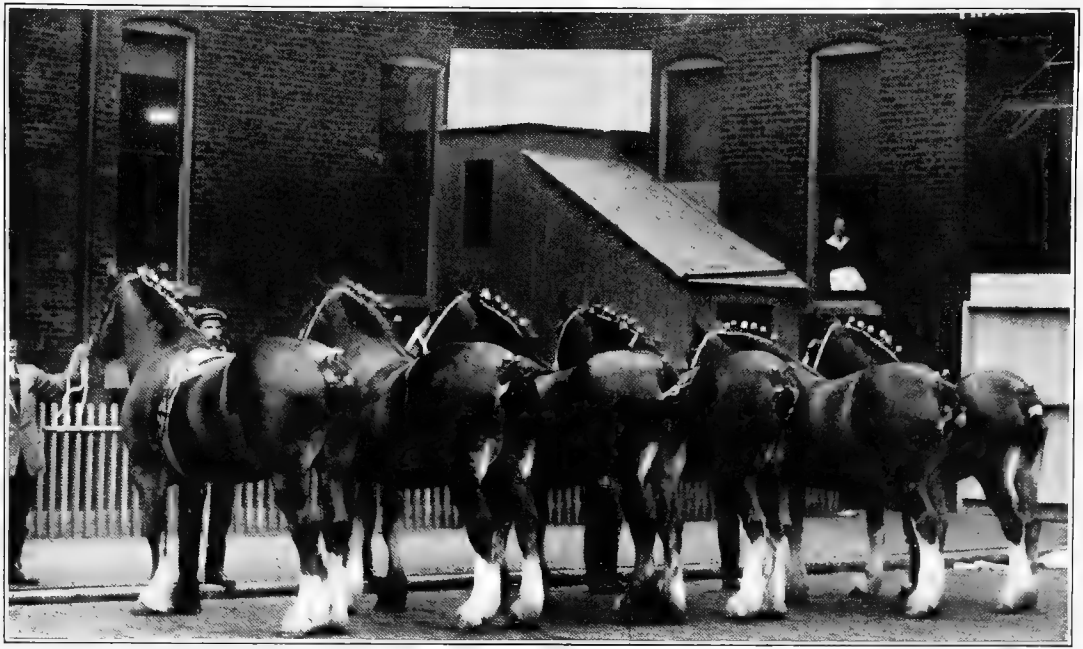
what more than is desired. The loins are wide, short and very thick. The flank is low and full. The hind-quarters are inclined to be short, very wide and muscular, and the tail is attached somewhat low and not well carried. The lower thighs are usually very wide and well muscled. The hocks are round, not clearly defined and too " meaty." One of the serious faults the American horsemen have found with this breed is in the character of the bone of the legs, particularly with the hock joints. The feet also receive rather severe criticism, as the hoofs are inclined to be small, narrow and very high in the heels, predisposing to side-bones and contracted feet. Marked improvement in these respects has been noted of late, however. In action, the Belgians are inclined to stumble at the walk, but trot off freely and with apparent vim and spirit. In color, the chestnut and roan are most common, although brown and bay are frequently found. The grays are not in favor, although occasionally one is seen.

In Belgium, these draft horses are classified somewhat according to the sections of the country in which they have been bred. Those from Flanders are the largest and those from Ardennais district the smallest, while those from Brabant are of medium size and weight.

17. Uses of the Belgian horse. — These horses are bred entirely for draft purposes, and they rank well among the heavy breeds, especially in Europe. The short, stocky legs, and low-set, blocky body make them very useful for slow, heavy hauling over city streets.

Belgian draft horses are especially adapted for crossing on grade draft mares lacking in weight and substance, for the production of heavy draft horses. When crossed on grade Percheron or Clydesdale mares, they impart an increased depth of body with a comparative shortening

PLATE II. — Breed Types of Horses. — Clydesdale Stallion and Mares.



of the legs, and a general massiveness of form not easily secured by the use of any other breed of draft stallions.

18. Distribution. — The Belgian breed of horses had no wide distribution outside of its native home, until within the past seventeen years, since which time it has been in general demand on the continent, as it is particularly desirable for use in the heaviest kind of work in large cities. Numbers have been imported into Germany, France, Holland, Sweden, Austria, and other European countries, the Argentine Republic, and other South American countries, and to the United States, where they have found rather extensive favor, particularly in the central states.

19. Organizations and records. — The National Draft Horse Society of Belgium (Le Cheval de Trait Belge) was founded in 1886, and the American Association of Importers and Breeders of Belgian Draft Horses in 1887. The former association has issued a number of stud-books, and is very aggressive in the interest of the breed. It receives national financial support. For twenty years the latter association did very little to encourage the breed, which accounts, in part, for the little interest taken in these horses in America until within recent years. It is now more active. The first stud-book was issued in 1905, since which time five more volumes have been published.

Clydesdale Horse. Plate II. Figs. 4, 5.

By *John A. Craig*

20. This breed has been known for many years as the draft breed of Scotland. It is one of the oldest breeds of British draft horses.

21. Origin. — The Clydesdale originated in the lowlands of Scotland, with the county of Lanark as the chief center of activity in producing the breed. It is frequently referred to as the Clydesdale district, and is divided throughout its length by the Clyde River. While the lowlands of Scotland have long been noted for the heavy horses bred there, yet it was not until the latter part of the eighteenth century that the breed was much improved by the importation of some heavy stallions from Flanders. John Paterson, of Lochlyoch, is said to have imported the first Flemish stallion for this purpose early in the eighteenth century. The Flemish stallions were large-boned and heavy horses of sluggish temperament, with slow, awkward action. The lowlands of Scotland are very favorable for the breeding of heavy horses, as the soil is fertile and the pasturage luxuriant; and these, with a suitable climate, have a marked effect on the characteristics of the modern Clydesdale, as they are favorable for growth of bone and muscle, giving both height and substance.

22. History of breeding. — The Clydesdale of to-day is the result of careful and persistent breeding for definite ends. The results of the breeders' efforts in a general way may be summed up by stating that they have ultimately been very successful in combining weight, quality and action as the prime essentials of a draft horse. These, successfully united, produce a draft horse that has pulling power, wearing quality or endurance, in association with ability to move properly at a satisfactory pace, either walking or trotting. The evolution of this breed of draft horses is more than usually interesting because of the decided views of the home breeders and the singleness of purpose which they have shown. The progress has been

secured through concentration on one feature after another, until it produced the desired results. Without government direction or aid to secure uniformity of progress, it is safe to say that the Scottish breeders have accomplished as marked improvement in their draft horses as the breeders of any other nation, and the modern Clydesdale of accepted type possesses inherited characteristics so fixed by consistent breeding that they are likely to be passed on to succeeding generations. Archibald MacNeilage, secretary of the Clydesdale Horse Society of Scotland, in a review (Famous Clydesdale Sires, Transactions of Highland and Agricultural Society, Vol. IX, 1897) of the most noted Clydesdale sires from Champion to MacGregor 1487, shows the evolution of a type from a coarse prototype, which the author describes as being a horse of weight with plenty of strength of bone, but not at all " right at the ground " in the modern sense, nor as " sweet " in his limbs as horses are liked now.

For a century the Clydesdale breeders in Scotland worked without results that were striking on the surface, but when this cycle had passed, the evolution of such sires as Prince of Wales (673) and Darnley (222) had crowned their efforts. The former is credited with possessing style and action in an unusual degree, and these qualities were very desirable to graft on to the breed at that time. But with the production of Darnley (222), a sire possessing the true balance of qualities which mark the serviceable draft horse, with the power to reproduce these, the Clydesdale breed received an impetus that effectively disarmed the old-time criticism of " light middles." From the Prince of Wales line has come Prince of Albion (6178), said to be the highest-priced two-year-old draft horse ever sold, up to this time, he bringing £3000. He

was, in turn, the sire of the two-year-old filly, Queen of the Roses, with a similar record, she bringing £1000. Also, from the Prince of Wales came Cedric (1087), exported to Scotland from the stud of Col. Robert Holloway, Alexis, Illinois, one of the leading importers of Clydesdales in America. From the Darnley line have come MacGregor (1487), McQueen (3513), Baron's Pride (9122) (Fig. 4) and his son Baron o' Buchlyvie, the highest priced stallion of any breed ($47,500 at auction) and sire of Bonnie Buchlyvie, sold for $25,000, the second highest price on record; and in such as these the Clydesdale breeders secured that combination of substance, quality and action, with right set of legs, for which they had striven long and assiduously. Beginning with a prototype coarse and weighty, it was refined without loss of substance; and then by concentrating their attention successively on style, action, set of legs, slope of pasterns, through years of criticism and discussion, the Clydesdale of to-day emerges with the desired characteristics very pronounced.

23. Purpose in the breeding. — In their adherence to quality, meaning thereby texture of bone, cleanness of joints and fineness of skin and coat and feather, the Scotch breeders made no mistake in so improving the breed at an early day, for it has not only added to the appearance of the individuals, to free them from the charge of grossness of joints and coarseness of bone, but it has also added materially to their durability under the strain of steady service. Fineness of feather and sloping pasterns seemed fine fancy points to the uninitiated, but a steady demand for them improved the quality of the Clydesdale at a rapid rate. The breeders previous to this had concentrated on action with a zeal that has hardly been equaled by the breeders of any

other breed of horses. The demand became insistent for action in show and breeding stock, and the result is that, in the possession of this feature, judged from a purely mechanical standpoint, the breed has made marvelous progress. The action required had to be straight, regular and free, both at the walk and at the trot, with a free flexion of the knee, a springiness to the pastern and a straight and close passage of the hocks. In the effort to secure these improvements, the Scotch breeders were very ably supported by the American breeders, although the latter did not feel like going so far in the securing of quality as the home breeders. It is very likely that the latter felt misgivings on the point, for there is no doubt but that the slight infusion of Shire blood, which was made into the Clydesdale, chiefly through the use of Prince of Wales (673), is, to some degree, evidence that they wished to regain some substance and weight, which, for the time being, had been sacrificed to a degree for quality.

The Clydesdale breeders ultimately secured what they had striven for, even though little attention has been paid to the American dislike for splashes of white on legs or body. In this connection it may be given as a general principle that while it is well to bear in mind the peculiar requirements of any trade, yet it is well to be careful in the matter of humoring any fad as to color or any other fancy point, when it clashes in any way with real essentials. Having secured the latter, then the question of markings and color may properly be allowed to enter as a substantial factor. Another feature is that the history of the live-stock trade in this country indicates that to cater to a color, especially of a fad, has its dangers. The preference for red among Shorthorn admirers carried to the point of a prejudice against the roan,

has reacted, although not until the breed had suffered as a consequence. The Percheron breeders submerged the old gray Percheron and gave preference to the more modern black in answer to American preference, and now that the demand of the draft-horse market in this country is said to place a premium on grays, the breeders will have to swing back if American preference is to be recognized. Uniformity of color and attractive markings are admitted by every one to be desired, and the Clydesdale is the sufferer for bizarre markings.

24. History in America. — The first importations were made into Canada in 1842, when Archibald Ward of Markham, Ontario, imported Grey Clyde, 78; three years later, R. Johnson, of Scarborough, Ontario, imported Sovereign, 181. Other importations were made into Canada in 1850–51–54. About twenty years later Clydesdales were imported to the United States, both directly from Scotland and from Canada as well. The largest importations were made after 1880, and in the following twelve years many thousands of both sexes were brought to America. They are now widely distributed, and generally known and used.

25. Description. — Clydesdales (Fig. 4) have a kind, quiet disposition, good courage, and enough spirit. A weight of 1700 to 2000 pounds for stallions and 1500 to 1800 pounds for mares, with an average height of $16\frac{1}{2}$ hands for the former and 16 hands for the latter, may be regarded as the standard for mature, well-developed individuals of this breed. The characteristics of the modern Clydesdale, in reference to color, vary somewhat, the most prevalent being bay, brown, black or occasionally chestnut, with white markings on the forehead or face and below the knees and hocks. They vary more in charac-

teristic markings than most of the other draft breeds, but in uniformity of type there is a striking similarity among the best. The head is almost invariably intelligent. The shoulder is exceptionally good, which gives a free, easy, long stride. It is somewhat oblique, accompanied by high withers. The arm is usually well muscled, and the bone clean and flat. The feather (hair on the legs) in horses of the best quality springs from the edge of the cannon, and is fine, silky and long. It is not considered of much importance in itself, but is valued for what it indicates. The assertion is made that a proper feather protects the coronet and back part of the pastern from filth and mud, and, consequently, is preventative of scratches. It has often been objected to in America. At any rate, the feather, when fine, indicates that the other tissues, the bone and skin, are also of fine texture. Conversely, when the feather is wiry and coarse and curly in this region, it surely denotes a leg predisposed to grease or scratches. The pastern and feet have been vastly improved in this breed in recent years, owing to the demand for more slope and length in the former and larger hoof heads in the latter. The same is true to a degree in regard to the coupling, which at one time was considered the weakness of the breed, attribut-

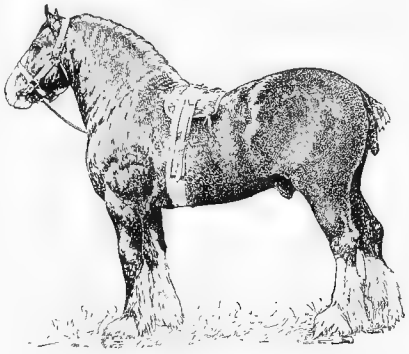


FIG. 4. — Clydesdale stallion, Baron's Pride, leading sire of the breed.

able to the lack of depth in the shorter ribs. Increasing the depth of body and adding to the length of the hinder ribs have been effective in lessening the prevalence of this criticism. The croup of the Clydesdale is muscular, and the quarters are specially well developed. The set of the hocks is one of the strong points of the breed. A properly set hock forecasts pulling power, and it also implies freedom from curbs and from coarseness, due to thoroughpin or bog spavins. With the web of the hock free from any filling, the latter works freer and stronger, and is not predisposed to diseases; and such a hock is almost invariably properly set, for it will frequently be noticed that it is the bent hock that is more "meaty" and subject to bog spavins and thoroughpins. Properly set hocks, above all other things, insure the hock action which is so greatly sought in Clydesdales. To bring the hocks well under the body and not to spread too much in passing each other are very desirable attributes, and these are eminently characteristic of the Clydesdale's hind action. The front action in best form is free, snappy and folding at the knee, chiefly attributable to a shoulder of correct slope, and springy yet strong pasterns.

26. Uses of Clydesdales. — The Clydesdale is essentially a draft horse, bred for that purpose alone. His free, straight, rapid gait, and strong, heavy frame, give him high rank among draft breeds.

Good types of pure-bred Clydesdales on native draft mares have given grades with considerable snap and power, well adapted for medium draft work in the city and on the farm.

The secretary of the American Clydesdale Association has reported the sale of four draft geldings, largely of Clydesdale breeding, on the Union Stock Yards market

for $3200, to Nelson Morris Company. Sales by private treaty are not reported to the extent that auction sales are, but this, however, is considered to be a record price on the Union Stock Yards market. It is, in a degree, an index to the merit attainable by horses of this extraction for draft purposes.



FIG. 5. — A Clydesdale filly.

27. Distribution. — The adaptability of the Clydesdale has led to a wider distribution of it than of any of the other draft breeds. It has found favor in the leading English-speaking countries, including, in addition to the United States, Canada, Australia and New Zealand. Argentina has imported many of the best, while several of the European nations, notably Germany, Sweden and Russia, have been most active in making importations. It has also found its way into South Africa. On this continent, the breed has been most popular in Canada, and the good effects of the use of this breed in grading up farm mares to produce drafters serviceable on the farm and marketable on the best markets, may be seen on almost any Canadian farm, while on the streets of the large Canadian cities, such as Toronto, Hamilton and Winnipeg, the teams attached to the lorries, showing in their characteristics Clydesdale breeding, will compare favorably with others.

28. Organizations and records. — In 1877, the American Clydesdale Horse Association was formed to look after the interest of this breed in America, and nearly 19,000 registrations have been entered. The Scotch Clydesdale Horse Society was organized in 1878. Each of these associations issues a stud-book, the American Association having published eighteen volumes. The headquarters of the American Association are in the Union Stock Yards, Chicago.

Shire Horse. Fig. 6.

By *John A. Craig*

29. The Shire horse is recognized as one of the leading breeds of draft horses. The best type is specially adapted for breeding the heaviest class of draft horses, suited for slow work, when weight and strength are prime essentials. For hauling large loads on lorries through crowded city streets, without jerking but steadily progressing, weight and strength are the main factors, and it is because of the possession of these qualities that the Shire maintains its position as a draft horse. A medium-weight horse may succeed in pulling more than one of heavier weight if permitted to rush at it; but to start a load steadily and keep it moving slowly, repeating this frequently, as is done on crowded streets, weight must supplement strength. Herein lies the reason for the popularity of the Shire for drayage purposes in England, where it originated.

30. History in Great Britain. — The Shire is considered to be descended from the old war horse of Great Britain and has been referred to as the War horse and the Great

horse in Great Britain. It is reported of Cæsar, that when he invaded Great Britain, 55 B.C., he was impressed with the excellence of the horses that were attached to the war chariots of the Britons. The breed attained its greatest development in the lowlands of England, in Lincolnshire and Cambridgeshire especially. Other near-by counties contributed more or less to the development of the breed. In early times, heavy active horses were in greatest demand for war purposes, and this led to the importation of heavy horses from Flanders and Normandy. Large importations of the heavy Black horses of Flanders were made as early as the eleventh century, and in succeeding years during the reigns of King John, Edward II and Henry VIII. One of the early improvers of the Shire was Robert Bakewell, who introduced blood of imported Holland mares in his breeding efforts. The development of the breed received much impetus in 1878, when the English Cart Horse Society was formed. The name of the society was due to the fact that the Shire was known primarily as a cart horse.

The history of the Shire shows a slow but persistent development of an improved type through a great space of time. The improvement of action and quality have received most attention from the breeders, and the results, as shown in a modern Shire, have been marked.

31. History in America. — The progress of the Shire in America has been substantial but yet not so rapid as might be expected, considering the decided merits of the breed. This, in a measure, has resulted from the dislike of the American trade for hairy-legged horses deficient in quality. It seems that hairy legs are more or less characteristic of all heavy breeds of horses reared in low countries, and they have been a breed character-

istic of the Shire since its inception. At a very early time the hair was very abundant, and the writer has seen some of the old-time Shires with even the lock of hair growing from the region of the knee in front, and other locks growing from near the point of the hock. Coarseness and unusual profusion of hair indicate too much grossness of organization, although a fine feather finishes a heavy-bodied horse at the ground in a way that is usually pleasing to the eye. The first Shires to come to America showed these characteristics to an extreme degree, and the prejudice of the American trade has not in any degree abated with time. The first importation to reach America was in 1836, and was made to London, Ontario, Canada. The first Shires to come to the United States were imported in 1853, and taken to Aurora, Illinois. The importations since then have been mostly into the states of Illinois and Iowa, and at no time have been numerous, except, perhaps, between 1880 and 1890.

32. Description. — In general characters, this breed is very like the Clydesdale, being, perhaps, a little shorter in the legs, and slightly larger (Fig. 6). The common colors are bay, brown or black, with white markings on the face and on the legs below the knees and hocks. Other colors are found but are not common. In conformation, the Shire is generally low, broad and stout, being heavy in build and slow in movement. The shoulder is likely to be too straight, making the action in front short and stilted, although it is generally considered that more power in the collar compensates for the deficiency in action. The body of the typical Shire is of large girth, deep and strongly coupled, with broad back. The quarters are heavily muscled in the best type. Owing to their weight, it is to be expected that some of them are subject

to the criticism of being deficient in quality and too sluggish in temperament. In general, they may be considered to be of heavier weight than the Clydesdale, although the difference is not likely to be great between representative animals, as the following weights and measurements of two prize-winners will indicate: Vulcan (4145), a Shire stallion that was champion at the London Shire Show, in 1889 and 1891, when eight years old weighed 2240 pounds in show condition; height, 17 hands; girth, 8 feet 7 inches; around fore-arm, 2 feet 7 inches; around bone below knee, 12 inches. Flashwood (3604), a Clydesdale stallion that was first at the Glasgow Spring Stallion Show, in the same years and months that Vulcan was first-prize stallion at the London show, and at the same age (eight years), weighed 2240 pounds; height, 17 hands; girth, 8 feet; around fore-arm, 20 inches; around bone below knee, 11 inches; above hock, $21\frac{1}{2}$ inches; and below hock, $12\frac{1}{2}$ inches. In the best types the legs are strong, bone flat with a "feather" of fine hair on the rear of the cannons, below the knees and hocks. The feet are large and somewhat flatter at the heel than is desired.

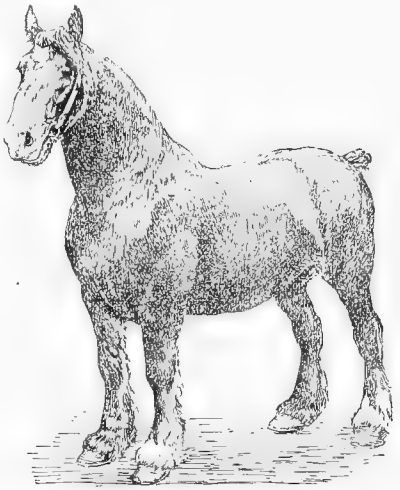


FIG. 6. — Shire stallion.

33. Uses of Shires. — Like the Clydesdale, the Shire is a heavy draft horse, slow-moving but sure and steady, and makes no claims for other uses, except for crossing on native draft stock and for improving other breeds with an injection of its blood.

The use of the Shire has been an important factor in improving our horse stock for draft purposes, as attested by the extent to which the best drafters of our modern markets have Shire blood on the maternal side. The Shire is credited with having produced the highest-priced gelding that has been sold by auction on the Chicago market, and many more of the best have traced to Shire blood on the side of their dams. Dr. Alexander is authority for the statement that a grade Shire gelding, weighing 2210 pounds, sold for $660 on the Chicago market in 1904, which is the highest price paid on that market that has been reported. Our breeding stock have surely not suffered because of the use of Shire blood, and there is a feeling that if the Shire had been more liberally used our breeding mares would more surely produce the highest-selling class of drafters. It remains to be said that the use of the Shire in draft-breeding to such a limited extent may be due in a measure to the fact that the source of supply for importation is not so large as that of some other continental breeds; and furthermore, it is difficult to induce home-breeders to part with their very best types, so much desired in their native land for breeding purposes.

34. Distribution. — This breed enjoys much popularity in England, as indicated by its prominence in horse shows. From there it has spread into most other English-speaking countries. Germany, Australia and Argentina have made importations. In America, it is most popular in the north-central states.

35. Organizations and records. — The first organization to care for the interests of this breed in England was the English Cart Horse Society, organized in 1878. Six years later it changed its name to the Shire Horse Society. It undertook the publication of a stud-book. The American Shire Horse Association, with headquarters at Wenona, Illinois, was established in 1885. It has published nine volumes registering 15,800 Shires.

Literature. — Sir Walter Gilbey, The Great Horse: The Shire, London (1899); same, The Old English War Horse, London (1888).

Suffolk Horse. Figs. 7, 8.

By *John A. Craig*

36. This breed of draft horses, sometimes called "Suffolk Punch", has not become so widely known as other European breeds, such as the Clydesdale or Percheron. It cannot be said to be as popular as either of these two breeds, yet it has many ardent admirers. It is bred in greatest numbers in its native district of Suffolk county, in the eastern part of England. It gets its name from the county and from the round, full-made type of body that characterizes the breed.

37. History in Great Britain. — The Suffolk can trace its history back to the dawning of the eighteenth century, and as early as 1851 it carried off most of the prizes for draft horses at the Royal Agricultural Society Show, at Windsor. At that time it had a distinct lead over other British draft breeds, but it seemed to be content with home popularity. Volume 1 of the Suffolk Stud-book

is an exceptionally elaborate and interesting compilation of the early history of the breed and should be consulted. Mention should be made here, however, of the so-called "foundation" horse of the breed — the Crisp horse, foaled in 1768, and owned by a man of that name residing in Sussex. His blood has been carefully preserved, and only horses that are traceable to him are eligible for registration in the Suffolk Stud-book. Outside blood was introduced in an effort to improve the Suffolk, but it had little effect. Docility, prolificacy and length of life characterize this breed. These horses have been much improved in the last thirty years.

38. History in America. — Although it was first imported to the United States in 1880, by Powell Brothers, of Pennsylvania, yet the progress of the breed does not seem to be at all commensurate with its merit. The importations have been very slow and very small. In 1888, Peter Hopley & Co., of Iowa, and Galbraith Brothers, of Wisconsin, made importations, and these parties have since been the leading exponents of the breed in this country. A large importation is reported as having been made in 1903. Some other importations have been made since, to Virginia and Texas.

39. Description. — The Suffolk is about sixteen and one-half hands high, and weighs about two thousand pounds (Figs. 7, 8). The color is exceptionally uniform, and it is generally some shade of chestnut.[1] Breeders have long adhered closely to a chestnut color. In general type, it is a low-set, short-legged, deep-bodied, muscular horse, with clean bone and durable feet. The feet were once

[1] Inasmuch as chestnut has been demonstrated to be a recessive Mendelian character, the uniformly chestnut color of the Suffolk is otherwise accounted for than by the prepotency of the original Crisp horse.

much criticized because of their flatness and brittleness, but have undergone great improvement in these respects. The head is clean-cut, with small ear, full forehead, and a more or less Roman nose. The neck is full, with a very strong crest, as a rule, in stallions. Too much thickness in the throat-latch sometimes results from undue coarseness of the neck. The shoulder shows good length and is of true draft form, not being too oblique. The chest is deep, wide and molded with muscle. The body or barrel, one of the leading points of merit in this breed, is deep, round-ribbed, and specially well let down in the hind flank. This undoubtedly contributes to the strength of the assertion that the Suffolk is an easy keeper, and of unusual endurance. The legs, devoid of long hair, are clean-cut, cordy and well muscled at the arms and thighs. The degree to which the Suffolk is muscled in the hind-quarters, and especially in the lower thighs, is one of the special features of the breed. Pulling contests at an early time were common among the adherents of the breed, and it is said that the ultimate outcome of these has been to develop the muscles of the thigh and the quarter much beyond what is commonly observed in the representatives of the draft breeds. The seeming lightness of limb, compared with the depth and weight of body, and fullness of neck, has, in many cases, given the Suffolk an appearance of being greatly

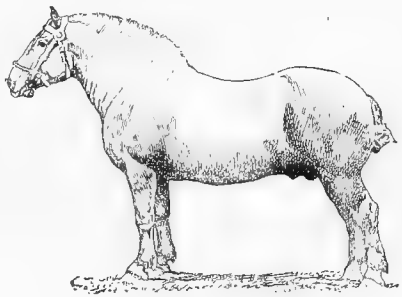


FIG. 7. — Suffolk stallion.

lacking in the proper proportion of such parts. It is a free mover, and this, with its somewhat lighter weight, easy keeping and docile disposition, peculiarly adapts it for farm work, express-wagon work and drayage purposes, where a certain amount of weight may be sacrificed for activity and durability. Individually and, to a remarkable degree, collectively, the Suffolk is a superior model of the draft horse.

40. Uses of the Suffolk. — The Suffolk ranks well as a medium draft horse because of its free action and endurance. As an agricultural horse and as an express-wagon horse, the Suffolk grade is superior, while those individuals that meet the requirements as to weight can hardly be improved for the heavier draft purposes.

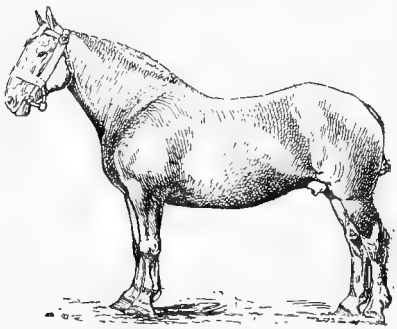


FIG. 8. — Suffolk mare.

The popularity of the Suffolk in this country has been held in check by the fact that it does not make so heavy a cross on the lighter native mares as the weightier representatives of the other draft breeds. Against this is the counter claim that it is very desirable for crossing on range mares, for the well-known even temper and docility of the Suffolk is a valuable attribute to graft on to such parent stock.

41. Distribution. — This breed has found favor in a number of countries aside from the United States and Canada, and is represented in Spain, France, Germany,

Austria, Russia and Sweden on the continent, Australia, South and North Africa, New Zealand, Argentina and other countries; and it has been the self-evident merit of the breed that has been the cause of this wide distribution. The breed has suffered, in America, particularly, because of the need of more freely distributed information regarding its good qualities.

42. Organizations and records. — The Suffolk Stud-book Society is the publisher of the stud-book for the breed in England. The first volume was published in 1880. The breed is represented on this continent by the American Suffolk Horse Association, with headquarters at De Kalb, Illinois. The first volume of the stud-book of the latter association was published in 1907, and a second has since appeared with a total of nine hundred eight registrations.

CHAPTER II

THE HEAVY-HARNESS BREEDS OF HORSES

The form peculiar to all heavy-harness horses is close and full made, with a high degree of finish and a stylish, flashy way of going, characterized by extreme knee and hock action. He is the horse of fashion, utilized for show and park purposes almost exclusively.

The term "heavy harness" applied to horses is frequently misunderstood and horses so designated are commonly confused with drafters. The origin of the term is clear if three divisions of horses are recognized — work, harness and saddle. Harness horses are further subdivided into heavy and light according to the style of vehicle to which they are put and the consequent weight of leather which they are required to wear.

Hackney Horse. Plate III. Fig. 9.

By *John A. Craig*

43. The present-day Hackney is a harness horse breed. Among the early English writers on subjects relating to the horse, the word "hackney" was apparently used frequently as a synonym for roadster. The word occurs in the earliest English, but its meaning, or rather the class of horse that it was applied to, is not made clear. Mr. Euren, the secretary of the English Hackney Horse Society, states that the Normans, at the time of their invasion, introduced the word *haquenée* or

PLATE III. — Breed Types of Horses.



HACKNEY MARES.



AMERICAN SADDLE HORSE.

hacquenée, which he states was recognized as far back as the year 1303. Chaucer also used the word "hakeney" or "hacknay," but does not give any clue as to the class of horse referred to. Cully, an early English writer on live-stock subjects, does not mention the Hackney. Lawrence, however, in some of his writings, gives us an inkling as to its application, and, as stated, it meant a roadster.

44. Origin. — The development of the Hackney into a breed may be traced to definite stimuli, which have been noticeable and in operation with more or less force in the development of several other breeds of horses. In the evolution of the breeds of light horses, there may be said to be a district suitable for rearing light horses of quality, which implies a soil well-drained, either light, hilly or underlaid with limestone, with good grass, all of which should indicate wholesome grazing conditions. With these associate men who love a horse, and let them be inspired with a definite aim, and the breed takes form and becomes popular according to the force and growth of the demand and ideals. A variety of sources are invariably drawn on, frequently very diverse in some attributes, but somewhat similar in the breed characteristics desired; and, these once secured, the aim becomes to concentrate and multiply them.

With these general conditions in view, let us bring their particular application to the Hackney. As bearing on this, and also to show that these factors were recognized by horsemen at a very early day, a quotation from Lawrence will suffice: "Light soils and a hilly surface of ground generally produce clean, vigorous and active horses, and probably there is no county in England where a better sort are bred than in Shropshire. Yorkshire and Lincolnshire are celebrated for carriage horses, and many very good ones are reared in those districts." Yorkshire

and Norfolk were the original home of the Hackney, at an early time known also as the Norfolk trotter; and Yorkshire became prominent in the development of this breed, through its adaptability to light horses and superiority over the counties of Shropshire and Lincolnshire in that the Yorkshireman was an enthusiastic horseman. To carry the postulate to its full and more recent application, it is necessary only to direct attention to what Kentucky, Vermont, Virginia, Tennessee and other states possessing the character of soil and people referred to, have accomplished. Conversely, apply what has been stated to be the evolution of draft breeds, and it will be apparent that the heaviest breeds of draft horses come from the lower and more level lands, with their more lush vegetation.

45. Breeding saddle horses. — Continuing our reference to Yorkshire and Norfolk, it should be said that the demand during the earliest time was for a horse that could trot fast under saddle, and the horsemen of these two counties vigorously took up the work of breeding a stoutly built fast trotting horse of as much endurance as possible. It is said (Wallace, Live-Stock) that the Norwegian horse was used at a very early day on the common mares of these counties, as it was in Norfolk and Yorkshire where the Norse invaders had their principal strongholds in England. The influence of this on the breed may be slighted when the more potent influence of the Thoroughbred is considered. It is also of interest to mention that even the blood of the Standardbred trotter found its way into some of the Hackney pedigrees through Shepherd F. Knapp, No. 282 in the register of Standardbred horses. The main source of the Hackney blood lines runs back to Arabian origin through the Thoroughbred, being similar

in this respect to all the other breeds of light horses. Since the eighteenth century, the breed has been undergoing evolution, and it may be said to have had its inception with Shales (699), variously called "The Original," "Old Shales," and so on. This horse, in the history of the Hackney or Norfolk trotter, stands in relation to the breed very much as Hambletonian 10 does in that of the Standardbred horse or American trotter; and, curiously enough, their breeding is of surprising similarity. Shales (699) was sired by Blaze, a Thoroughbred horse, foaled in 1733. It is said that Blaze was not a Thoroughbred, but the best evidence we have credits him with being about as much so as any other horse of that early day. Blaze was by Flying Childers (a noted running horse), by the Darley Arabian. The dam of Blaze is asserted to have been by Grey Grantham, by Brownlow Turk out of a mare by the Duke of Rutland's Black Barb. Now the same Blaze sired Sampson, the sire of Engineer, he the sire of Mambrino, and he, in turn, the sire of Messenger, which was imported to America and was the grandsire of Hambletonian 10. Again, the dam of Hambletonian 10 was the Charles Kent mare by Imported Bellfounder, a Norfolk trotter tracing back through the Fireaways to Driver, a son of Shales by Blaze. The dam of the Kent mare was One Eye, by Bishop's Hambletonian, a son of Messenger. Yet again, Mambrino Chief was by Mambrino Paymaster, by Mambrino, by Messenger. So we have the two great lines of the American trotter, Hambletonian 10 and Mambrino Chief 11, tracing back through Messenger to Blaze, and the most noted of the early sires of Hackneys or the Norfolk trotters going back to the same Blaze. May it not be reasonable to assume from these facts that the latter horse orig-

inated the trotting instinct, which has later developed into a breed characteristic? Following the development of the Hackney, we find that Shales (699), considered the most famous trotter of his day in England, sired Driver (187) and Scott's Shales (692), and, according to the statement of a writer of authority, " to the former of these horses many — very many — of the best Hackneys of the day owe their origin." For example, Philip Triffitt's great sire, Fireaway, was by Achilles, by Achilles (Hairsines'), by Fireaway (Scott's), who was got by Fireaway (Ramsdale's), by Fireaway (Burgess'), by Fireaway (West's), by Fireaway (Jenkinson's), a son of Driver. It may be interesting to state here that John A. Logan is authority for the statement that the stock of Triffitt's Fireaway has sold to the amount of $2,500,000, which is somewhat of an index to the value of this horse to the breed.

Mention of other noted sires should include Denmark (177), sire of Danegelt; Lord Derby II (417), sire of Cadet, 1251; Confidence (158), sire of the Champion and Reality (665); and Rufus, an Elsenham Challenge cup winner and a noted progenitor of Hackney character.

46. Breeding for driving. — With the change from use under the saddle to driving on the road attached to a vehicle, the Hackney's proclivities to trot do not seem to have undergone any modification; although there was a tendency at this time toward refinement of the type, largely through the greater infusion of Thoroughbred blood. This also added to the height without changing the form much, except to add some to the straightness of the croup. Up to this time, and since, considerable evidence had been accumulating to indicate that the Hackney possessed more than ordinary excellence for long-dis-

tance trotting. Such records, it remains to be said, are of use only to enable us to understand the original characteristics of the breed, not for their official value to establish the reputation of the Hackney of the present day, for speed at the trot, for either long or short distances. It is to be remembered, also, that these records, if they may be called such, are in nearly all instances dependent on hearsay and not on official trials over measured distances. It is said that Driver (187), already referred to, trotted 17 miles within the hour, and Fireaway is credited with having trotted 2 miles in 5 minutes. The performance that is most noteworthy is that credited to the mare Phenomena, that in July, 1800, trotted 17 miles in 56 minutes, and shortly afterward repeated the same performance in 53 minutes. Attention has been drawn to the fact that it was not until 1849 that Trustee, in America, trotted 20 miles in 59 minutes and $35\frac{1}{2}$ seconds. The mare's rate would be 20 miles in $62\frac{1}{2}$ minutes, showing that at that early day the Hackney or Norfolk trotter was noted for ability to trot long distances, with speed unusual at that time.

The secretary of the Hackney Horse Society, Mr. Euren, in the first volume of the stud-book, credits the era of railroad building with dampening the ardor of the breeders of Hackneys; and, for a time, the breed did not receive much hearty support. A revival came in a very decided manner with the advent of exhibitions, and especially with the inauguration of horse-shows. Until the breed began to attract notice for heavy-harness and high-stepping purposes, they were not very largely imported from England, nor did they attain their present popularity in England. It was in the spring of 1893 that the first notable Hackney exhibition was held in England.

In America, the horse-shows, the growth of recent years, as distinct from the usual live-stock shows, were factors that did more to popularize the Hackney than any other influences. The high-lifting action of the Hackney, both fore and aft, made a very attractive feature of the shows; and that, coupled with the growth of the high-stepping fad, gave the breed a strong impetus, although their genuine merit as heavy-harness horses has outlived this. The possession of stoutness of form with this action has adapted them particularly for heavy harness and heavy vehicles.

47. History in America. — Aside from the first importation to America of Bellfounder (55), in 1822, by James Booth, of Boston, the next importation of note was the stallion Fordham, a son of Denmark, brought over in 1881, by Hillhurst Stock Farm, of which Senator Cochrane, of Quebec, Canada, was proprietor. Then comes the era of the horse-show, when extensive importations were made, chiefly into the New England states and Canada, with scattering importations into Ohio, Wisconsin, and other states. The largest of these importations was made in 1890 by Seward Webb, of Vermont, who imported thirty-one horses, four of which were stallions. About this time, there was a lull in the profitableness of breeding Standardbred trotters, which put many horses of this breeding on the market that otherwise would have been retained in the breeding stud. Attention was drawn to the fact that many horses of Standardbred trotting lines were competing with the Hackney, especially in the high-stepping classes, in the show-ring. They were more or less freaks, with the high stepping exaggerated by heavy shoeing and training, but they sometimes made a more popular show than the Hackney, by being able to go

fast as well as high. There was little inclination among exhibitors at that time to stop and consider that fast going was not a much sought after characteristic for a high-stepping or a heavy-harness horse. A lessening of the interest in the mere high goer, and more attention to the trueness and serviceability of the action, has done good in recent years; and the outcome has been to strengthen the position of the Hackney and make it more decidedly a heavy-harness horse.

48. Description. — The Hackney of true type is a horse of substance, extremely smooth and with gracefully curved outlines (Fig. 9). Being full made, owing to splendid muscular development, and being on short legs, the representative of this breed suffers in stature in comparison with most of the other coach breeds. The type most sought, and the one that may be said to be the old-fashioned type, represents a powerfully built horse, round-ribbed, muscular loin, and plump quarters, with short legs. The desire for more quality on the part of some of the breeders, and the use of Thoroughbred blood to secure it, had the effect of making some of them more bloodlike and rangier in appearance. The question of height in the Hackney has been liberally discussed, and the general belief is that a height of 15.2 to 16 hands is most com-

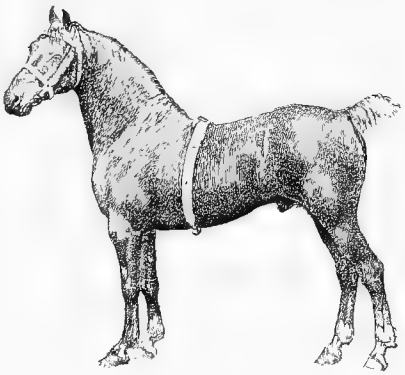


FIG. 9. — Hackney stallion.

patible with the other features of the type that are desired. It might be mentioned that until recent years the Hackney rings at the exhibitions of the Royal Agricultural Society of England were open only to horses not exceeding 15.2 hands in height. So many of the noted sires of later years have been over that height, that it was not advisable to enforce the restriction, and consequently it was removed. A well-known writer states that it is somewhat remarkable to note that most of the successful stallions, both as sires and exhibition horses, of the present and past generations, have stood 15.2 hands high.

For a horse of such substance, the Hackney is not deficient in quality, although to combine the two in a right degree is as much a problem with the Hackney breeders as it is with the breeders of the other breeds of coach horses. Substance, meaning thereby muscular development and size of bone, is easily enough secured; but to have with it the refinement of features and tissues, with fluted legs, which makes up quality, is a combination of the highest excellencies.

Such being the general form, a more careful analysis of the several features that blend into the type desired is necessary to fill out the details of the true type. The Hackney head sometimes approaches meatiness, but, as a rule, it is well proportioned to the body, clean-cut, with full eyes and specially alert and medium-sized ears. It has been criticized for a tendency towards being "bull" or thick-necked. In the Hackney, the shoulder is a point of particular importance, for it has a great deal to do with the high knee-folding action, so very much admired in the heavy-harness horse. A long, sloping shoulder, well clothed with muscle, gives it that lifting power in front which is a feature of the front action more often

met with in this breed than any other. The body must necessarily be deep and round-ribbed, to give that appearance of substance required, together with the rotundity characteristic of the type. A loin swathed in muscles, even to the extent of rounding upwards slightly, makes a strong, short coupling, which should join smoothly a plump rounded and deeply muscled hind-quarter. These, with muscular thighs and well-set and strong hocks, are derivative of the snappy and propelling hock action behind.

49. The action. — It is in the action of the Hackney that the chief merit of the breed for heavy-harness purposes resides, although this statement is not meant to belittle the special type required also. It is stylish, attractive action, not speed, that is of most importance. The front feet, in walking or trotting, are lifted with snap and spring, and in the trot the foot goes forward after being uplifted, as if it were following the rim of a wheel. It is not held in the air at any one point; that is, the leg is not fully extended when the foot is several inches from the ground, but it is still following the imaginary rim of a wheel when it reaches the ground and is planted firmly. When pulled up, it does not fly toward the elbows as if to hit them, but goes up and out without any delay in the knee-folding. While the fore action is a point of paramount importance, yet it may be said that in its hock action for heavy-harness purposes the Hackney has hardly a peer. The hock is lifted sharply toward the body, and the action is in no sense sprawling. Many horses can be made to step high and fold the knee, as a Hackney or heavy-harness horse should do, but the true heavy-harness hock action is not susceptible to artificial imitation. The weakness of most

horses, other than Hackneys, in the heavy-harness classes, is that the hind-leg dwells somewhat like a duck swimming in water; it is not brought up quickly to the body. Very frequently, the leg from the hock down is thrown stiffly forward, making the horse spread or sprawl in his gait, as his hind-feet have to be thrown out and past the fore-feet. Such a horse, no matter how high or folding or even perfect his fore action may be, cannot go with that collected and well-balanced stride that a heavy-harness horse should have. He may likely go faster, but at a moderate gait, such as that which is most useful for heavy-harness horses, he cannot go collected and with snap and style. Snap and style in hind action are as necessary in the view of the critical horseman as that of the fore-feet, and, to have it, the hocks must be properly flexed, with perhaps less stifle action than that required for speed.

50. Color of the Hackney. — In reference to the color, it may be said that these horses are mostly chestnut, bay or brown, with white markings. A rich, dappled brown is not an infrequent color.

51. Soundness of the Hackney. — A note should be made of the fact that unsoundness is not frequent among Hackneys. While not in the least desiring to detract from this desirable trait, yet it needs to be qualified somewhat, especially when it is used to make invidious comparisons with the Standardbred trotter. The Standardbred trotter usually leads a strenuous life, beginning to race when two years old. The popularity of the colt trotter as a money-maker, because of the large stakes for two- and three-year-olds, as well as the large purses for free-for-all campaigners, puts our Standardbred trotter through a course of racing that is a very trying ordeal.

The Hackney is more carefully kept and is never tried out in the sense that our trotting horses are, consequently it should be sounder and always fresher. The fact remains that the Hackney as a breed is unusually free from unsoundness. Since the Shire Horse Society of England wisely decided, in 1885, that all horses at their annual show should undergo veterinary examination conducted by three qualified veterinarians, other societies have followed the system, although with most of them only one veterinarian acts. In regard to the Hackney, it may be stated that the Hackney Horse Society for the past seventeen years has subjected the entries to its show to veterinary examination, and the percentage rejected has been very small. Of course, when such a system is in vogue, much carefulness on this point would be observed by exhibitors; consequently it is hardly a complete index to the prevalence of unsoundness in the breed as a whole. However, combined with general observation, the figures bear out the point that unsoundness is not very prevalent. In the years from 1896 to 1904, inclusive, 2108 of the horses were examined, and 106 of these were rejected, showing an average of not quite 5 per cent rejected.

52. Uses of the Hackney. — From what has been written, it is clear that the special field for the Hackney is the production of heavy-harness horses, for the breed in itself has been specifically bred for that purpose. The high knee-folding action and attractive appearance, either standing or in motion, adapt it for the production of stylish heavy-harness horses for city driving. Possessing these qualities, with the substance and smoothness of type to wear heavy leather becomingly, the Hackney as a breed has superior claims.

The degree to which a breed may be useful in producing

a marketable product is a factor that has to be considered, as well as the breed characteristics. However useful pure-bred horses may be, yet the degree to which they may contribute to the general improvement of the horses of a country is a broader and more influential factor entering into their standing. In this respect, the Hackney has established a reputation. On our common mares of much quality and some action, the Hackney makes a desirable cross. As Johnstone says, "the similarity of action I count the most salient of its features," and it is because this mechanical action is so deeply bred into the Hackney that it is, perhaps, the most likely of any of the European light horses to transmit it. It seems to be easier to produce the type than it is to secure the natural heavy-harness action. The tendency toward this action and type is surely stronger in the produce of the Hackney, because the breed itself has been bred for years for just those things; yet it is not safe to assume that it will come spontaneous to the service without proper mannering and encouragement.

53. Distribution. — The good qualities of the Hackney have attracted world-wide attention, and, as a consequence, it is now found in many lands. In general, from England it has gone out into France, Germany, Holland, Denmark, Belgium, Spain, Italy, far east into Japan and south into Africa, Australia and New Zealand, and westward into the Argentina in South America, and into Canada and the United States in North America. It is pressing its way into every land where heavy-harness horses are in demand. In America, the Hackney is bred in the largest numbers east of the Mississippi river, but numbers of the breed have become very broadly scattered over the states and provinces.

54. Organizations and records. — The societies devoted to the breed are the English Hackney Horse Society, established in 1883, with the first stud-book published the following year, and the American Hackney Horse Society, with headquarters in New York City, established in 1891. The first volume of its stud-book was issued in 1893. Six volumes of the American Hackney Stud-books and the Annual Reports for 1914 and 1915 have been published, covering the registration of over 1700 stallions, over 2900 mares and 224 foundation stock mares.

French Coach Horse. Fig. 10.

By *John A. Craig*

55. The name " French Coach " originated in America, and it is here the official designation of this breed of coach horses, although not in use in France, where the name " Demi-sang " prevails.

There has always been a strong demand in most of the horse markets of the world for high-class coach or carriage teams. The fact that carriage teams of right type and action have brought unusually high prices in the horse markets has always been a strong stimulus for their production. This of itself has led to the development of breeds suitable for the production of such horses in several countries, but an additional stimulus was added to the production of the French Coach through the French government being actuated by the desire to supply its army with the best remounts. The wisdom of this has already accrued to the advantage of the private individual, for superior carriage horses are always at a premium, and it remains for a war to bring to the attention of other nations the

superior foresight with which France has provided for her cavalry and other army corps in the matter of remounts. It is a national work, the matured fruit of which will be fully apparent only in a national crisis when most needed.

56. History in France. — In the latter part of the seventeenth century, the French government, by establishing the Administration des Haras, began the systematic improvement of their horses, and as early as 1690 there were 1600 stallions known as "royal" or "approved." During the many years of disturbance in France, changes of government and national reverses, the work has gone steadily on to the present day. In 1879, there were 3239 stallions in the government service, and at the present time provision is made for the maintenance of 3300 government stallions, mostly kept in that part of France west of Paris, and particularly in the province or district of Normandy. It is in this section that the breed has had its greatest growth, and it was because of this that some of the earlier importations were called Anglo-Normans. In 1833, a stud-book was established, and in 1870 the department of agriculture was given control of the government horse-breeding interests under the supervision of a director general and staff of inspectors. The government control is exercised in a way very similar to that described in discussing the Percheron, except that the government, in the case of the coach horses, does most of the breeding, and consequently branded stallions among the French Coachers are not so common as among the draft breeds. According to the report of the Director General for 1903, about fifteen hundred stallions owned by private parties were approved and authorized. The same classes are made as in the case of the draft breeds,

there being (1) the stallions in the government service, (2) the stallions subsidized to the extent of $100 to $1000 yearly while approved, and (3) the stallions authorized for public patronage. All others are prevented by a law passed in 1885 from standing at public service, although any owner, at his discretion, may use such for private purposes, a practice that is not encouraged.

In the breeding operations of the government, a great variety of sources are drawn on. Thoroughbreds have been very extensively imported from England since the early days of the breed, and Hackneys have been freely imported and liberally used; in the inception of the breed, twenty to thirty Hackneys were imported annually. Heavy importations of Arabians and others from the Orient have been made, particularly in the early stages of government control, and even stallions of American breeding have been used. Niger, whose record is quoted elsewhere as among the best, was sired by the Hackney stallion Norfolk Phenomenon, and had an American-bred mare for his dam. Descendants of Norfolk Phenomenon were a popular line of breeding, and enter largely into the pedigrees of many of the Demi-sang. Another stallion that had considerable to do with the better type was Aemulus by Mambrino Pilot, and out of a Morgan-bred mare, Black Bess, consequently representing one of the old strains, common among our Standardbred trotters. This is mentioned to indicate further the variety of sources drawn on for foundation stock. In the production of trotters among the French Coach horses, one stallion, Fuchsia, holds about the same relation to the breed as Hambletonian 10 does to that of our American Standardbred trotters, in the extent to which the blood of each predominates in the respective breeds.

57. History in America. — The French Coach horse was most extensively imported to this country during the eighties, many of them coming to the eastern states. Those sent west were most largely taken to the states of Illinois and Ohio. In the middle west they have been liberally patronized, and when the foundation mares were of suitable size and type, and a fair degree of action, high-class carriage horses have been produced. The scarcity of the proper type of mares to breed to such stallions militated against the reputation of the breed for crossing purposes; and especially has the scarcity of genuine coach action been the source of some disappointment.

58. Types of French Coach horses. — Owing to the needs of the army, the French Coach horse in France is represented by two types, referred to as the Demi-sang trotteur, or those of the trotting type, and the Demi-sang carrossier, or those of the coach type. There are now two stud-books in France for the registration of these: The French Stud-book, A Register of Demi-sang Horses Born and Imported in France, established in 1833; and the Stud-book Trotteur, compiled and published in 1907. Records had been compiled before this, but only in recent years has the full importance of these become manifest to the patrons of the breed.

59. Coach type. – The French Coach horse of the coach or " carrossier " type is in every essential a coach or carriage horse according to the market requirements (Fig. 10). These horses stand, on an average, sixteen hands high, and in weight may vary from ten to fourteen hundred pounds. Most of the horses of this type are upstanding, carrying their heads and tails high when in motion or at rest. They are smooth, symmetrical and invariably of fine quality, with very graceful movement, having high

and bold knee action, with regular, uplifting, hock action. They have intelligent heads, graceful necks, snugly ribbed bodies and muscular quarters. If any part of the conformation might be chosen as fit for general criticism, it would be the legs, although these, in most instances, are well set and have every evidence of quality. There is an airiness and gracefulness about a well set-up French Coacher that is hard to find in any other coach breed. It is due chiefly to their unusual length and gracefulness of neck, in conjunction with a spirit of alertness in movement or statuesqueness in standing which, besides being due to bodily conformation, is also traceable to the excellent training they receive to show their qualities to the best advantage. The common colors are bay, brown or black. Considering the mixed breeding followed in evolving the French Coach, it is exceptionally uniform in type, a result due likely to the uniformity in the standards of the men who as directors have control of the government breeding operations. The greatest success in producing the most handsome and stylish carriage or coach horses has been attained by using mares approaching as nearly as possible the type desired, with as much quality and action as possible.

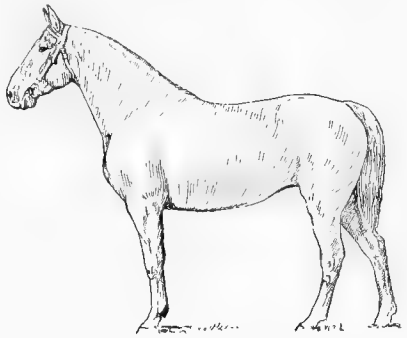


FIG. 10. — French Coach mare.

60. The trotting type. — The production of the trotting type for many purposes has been encouraged since 1836,

when the French government began offering prizes for trotting races, with the special object of encouraging long-distance trotting, more especially under the saddle. The races are usually for distances varying from two to three miles, and are run over sod ground. The records are established by the kilometer, which is about five-eighths of a mile, without reference to whether the race extended one or three miles. They are made under saddle from a standing start and carrying not less than 120 pounds. As might be expected, those of the trotting type are racier in appearance, being somewhat like our own trotters, finely drawn, more angular than the coach type, rangier in appearance and somewhat better in quality. A horse of stamina and substance, as well as speed, is required, for it is to be remembered that the races are for long distances over turf, which demands strong, bold going and powerful action on the part of the animals.

61. Speed records and races. — As to speed, M. W. Dunham, who was an extensive importer and breeder, has compiled the following data from official records: In 1891, there were 1399 contestants in races, 312 of which trotted races of two to three and three-fourths miles at less than three minutes per mile; 137 under 2 : 50, 112 under 2 : 45 and 62 under 2 : 40. One hundred and one of the 312 were three-year-olds. The average distance was $2\frac{1}{16}$ miles; average time per mile, 2 : 50; fastest time for three-year-olds, distance $2\frac{1}{2}$ miles, 6 : 33; fastest time for five- to seven-year-olds, distance $3\frac{1}{8}$ miles, 8 minutes. In further reference to speed it may be noted that in 1877, Zacinthe is credited with having trotted $18\frac{3}{4}$ miles over a good road in 59 minutes, and Niger in 1873 trotted $2\frac{1}{2}$ miles in 6 : 55. To prevent the

sacrifice of size for speed, it is asserted by the authority just previously quoted that a law was enacted excluding all horses from public races that were under fifteen and one-fourth hands high.

As illustrating the conditions under which most of the races are held, the Derby of Rouen may be cited. It is worth 20,000 francs, made for three-year-olds, to be entered the year of their birth, and trotted in June on turf track two miles under saddle, fillies to carry 120 pounds, colts 125 pounds. From these conditions and the data submitted, it is easy to understand that the government's aim is to encourage speed at the trot without sacrificing stamina or substance.

62. Uses of the French Coach horse. — The use of the French Coach horse for carriage, cavalry and fast saddle purposes will have been gathered from the preceding discussion. It remains to mention the use of French Coach stallions on common mares bred in America for the production of a grade coach horse for general city purposes. Considerable success has followed such efforts when pure-bred stallions have been used. Half- and three-quarter bred coachers have commanded high prices on the market.

63. Distribution. — The French Coach horse has been imported into many parts of Europe and America, but has not been bred systematically to any great extent outside of its native home. As has been said, it is found in America chiefly in the eastern states, Illinois and Ohio being, perhaps, the leaders.

64. Organizations and records. — The stud-books devoted to this breed in France are mentioned in paragraph 58. The French Jockey Club, organized in 1833, has been responsible for much of the development of the breed. The French Coach is represented in America by the

French Coach Horse Society of America, organized in 1888, with the present secretary at Oak Park, Illinois. This society published the first volume of its stud-book in 1906.

German Coach Horse. Fig. 11.

By *M. W. Harper*

65. The title indicates that this is a breed of coach horses, taking its name from Germany, where it was developed. Horse-breeding in Germany is influenced greatly by military requirements, and few of the draft types are found there. Although Germany has several types or breeds of horses that are suitable for commercial and military purposes, she still imports many English horses.

66. History in Germany. — Formerly the German Empire was comprised of a number of states or principalities each with its own form of government. Since there was no interchange of ideas, a number of strains of horses developed, varying widely in weight, conformation and action. Such was the condition of horse-breeding at the time of the formation of the German Empire. While several of these strains retain their identity at the present time, many others have been absorbed. This no doubt accounts for much of the obscurity in the early history of the German horse.

The northwestern parts of Germany, particularly the lowlands drained by the rivers Elbe, Weser and Ems, which flow into the North sea, have long been noted as the horse-breeding section of the Empire. Early records of horse-breeding in Germany go back nearly five centuries. As early as 1500, important annual fairs were held in

Friesland, near the Holland boundary, where buyers from Holland, Belgium and Germany found superior horses. A government stud was established at Ilo, which contained 182 horses in 1648. At Harlingerland, in East Friesland, government studs were in operation, and reports refer to these as far back as 1712, when sixteen stallions were used for the service of 819 mares. In 1889, in this same region, fifteen stallions were used on 1421 mares. While the Thoroughbred was extensively used in the formation of the French Coach horse, the Germans made little use of English blood in the development of their horses, particularly in the breeding of horses for cavalry. The Germans demanded a horse possessing much substance. In other horse-breeding countries, particularly England and France, we find draft and coach horses being developed side by side, which leads to a division of labor, the heavy or draft horses doing the heavy work, and the light horses doing the lighter work. In Germany, the same breed often serves both purposes. It is interesting to note that no attempt has been made to breed horses for speed as in England and France. It seems that the prevailing idea was to produce a heavier horse suitable for general purpose and for military service.

Government supervision of horse-breeding in Germany has obtained for centuries. The use of stallions on mares of East Friesland was regulated by royal edict for many years. It was made a law that no permits should be issued authorizing the use of stallions, unless the latter had passed a satisfactory government inspection. At the present time, both the government and the agricultural societies promote intelligent horse-breeding. Prizes are awarded to animals of special merit, and such animals

must remain in the country for a specified term. First prizes are awarded only to mature horses and mares that have shown merit as breeders. Stallion shows have long been held at Aurich, in East Friesland, where the horses are brought annually for inspection and approval. Prizes for brood mares are also awarded by the government.

67. History in America. — The history of the German Coach horse in America is comparatively brief. It first made its appearance in the United States in the eighties. Not much prior to 1890 did the breed receive recognition at American shows. A. B. Holbert, of Greeley, Iowa, was one of the earliest to introduce the breed. Oltmann Brothers, of Illinois, and Crouch & Son, of Indiana, have also been most actively and prominently identified with its promotion in America.

German Coach horses of importance are not as yet found in America in large numbers. Among the earlier ones imported, Moltke 13, Kaiser Wilhelm 494, Young Altma I 458, and Young Adonis 476, met with favorable comment, the latter being a successful prize-winner in California in 1891. In the central West, Bertus, brought out by Oltmann Brothers, and Euto and Hannibal, owned by Crouch & Son, have been distinguished in the show-ring, winning against the severest competition for years in succession.

68. Description. — In describing the characteristics of a typical German Coach horse as seen in America (Fig. 11), the German Hanoverian and Oldenburg coach Horse Stud-book says:

"The typical German horse is bay, brown or black, sixteen to sixteen and one-half hands high, and weighs 1350 to 1450 pounds. He has a deep, round body, close ribbed, and well proportioned, neck long and high set on the

shoulders, neat at the throat, with clean cut head and with bright and intelligent countenance. His back is short and strong, smooth at coupling, tail well set, plump rounded quarters, strongly muscled limbs, strong hock, clean flat bone, and the best possible feet."

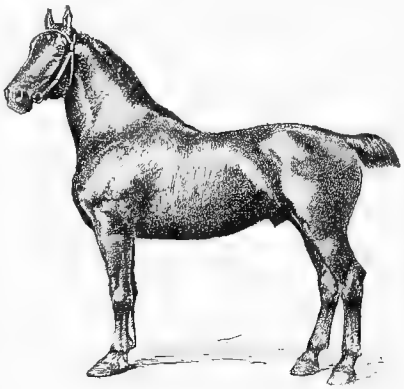


FIG. 11. — German Coach stallion.

From the discussion of types given below, it will be evident that these horses vary in size. Coarseness is not uncommon, as seen in large head and joints, with more or less grossness of bone. In action, from the coach horse point of view, they are frequently deficient. A superior folding of knee and flexing of hock, is not a prevailing attribute of the American specimens of the breed.

69. Types and families. — As stated above, owing to the conditions prevailing in Germany, we have many types of German Coach horses. Perhaps the most noted are the East Prussian or Trakehner horses, the Hanoverian, the Holstein, the Oldenburg, and the Schleswig coach horses. Most of these have separate stud-books and are well recognized.

70. The East Prussian or Trakehner horse is perhaps the lightest of all. It has a good disposition, great endurance, a fine head, well-formed back and is well ribbed up. It is, perhaps, rather long legged, looks rather light

for its height, and lacks the action that is admired in a carriage horse. In 1732, Frederick William I, King of Prussia, founded the stud at Trakehner. This soon became the home breeding center of East Prussia. Frederick furnished this stud with something more than 1100 horses collected from the royal studs. There were a few importations from Arabia and a few Thoroughbreds added to the stud from time to time.

71. The Hanoverian horses are larger than the East Prussian horses. However, they are softer, and their action not so good, due, perhaps, to the Arabian and Thoroughbred blood in the East Prussian horses. They are used more for draft than for saddle purposes. They have strong legs and a good back, on which they can carry a load sufficiently heavy to make them serviceable military horses. These horses are bred by farmers, who work the brood mares on their farms. There is no trace of either Arabian or Thoroughbred blood in their veins.

72. The Holstein horses are about equal to the Hanoverian in size. They are fine powerful horses, with good legs and free action, are suitable for both riding and driving, and are in great demand; but it is doubtful whether they are as enduring as the East Prussian horses. For many centuries, Holstein has been noted for its good horses.

73. Oldenburg horses are, perhaps, the parent of the German Coach horses, and are used for heavy coach work, and as all-purpose horses, but seldom are used as saddlers. Some writers contend that these horses are not of the best quality, but stand in high favor because of their great size, some being seventeen hands high, and broad in proportion. They have good dispositions, and mature at an early age.

74. East Friesland horses are about as large as the Oldenburg horses, and have grown up under similar conditions. The East Friesland Stud-book says: "The object of the breed is to produce a strong, noble and docile carriage horse, which will develop quickly, and can be put to light agricultural work in its third year, in order to refund a part of its cost of rearing."

75. Schleswig horses were formerly among the most highly prized of German horses. They were in great demand for military purposes as they possessed sufficient size and stamina to carry the heavily armored knight and to do all kinds of pack and draft work. Possibly the most noted stud in Schleswig was that established by Frederick III in 1648. It is stated that present-day horses can be traced to this stud. In 1891 the Registered Union of Schleswig Horse Breeding Societies was formed with the stated object of "supplying a strong work horse that can fulfill agricultural, commercial and military requirements."

76. Uses of German Coach horses. — As stated above, in the German Empire this is the horse-of-all-work. At home, this breed is called on to do the saddle work, the light as well as the heavy carriage work, and the draft work. In this country, the German Coach horse differs from other coach horses in at least two respects. In the first place, there has never been any attempt to breed or train them to speed at the trot; and in the second place, some strains are decidedly heavier than the other coach horses, notably the Hackney and the French Coach. There may be individual exceptions to this statement, but in this country the large German Coacher ranks between the French Coach and the Suffolk Punch, the lightest of the draft breeds.

Since we have the two extremes, varying so much in size, conformation and action, we might expect them to meet a variety of conditions. For example, take the East Prussian or Trakehner horses, which have some Arabian and Thoroughbred blood in their veins, and we would expect these to meet any condition requiring a light well-bred horse. They possess much quality, action and endurance, and are undoubtedly adapted for light coach work. On the other hand, we would not expect the heavy horses from Oldenburg, to be so active nor enduring. In fact, these big horses are looked on with disfavor by some persons.

77. Distribution. — The German Coach horse is found in many countries throughout Europe, South Africa and both North and South America. In Canada, it is perhaps most popular in the Northwest. In the United States, it is most popular in the states of Indiana, Illinois and Iowa, but it is found in many parts of the country.

78. Organizations and records. — The German, Hanoverian and Oldenburg Coach Horse Association of America was incorporated under the laws of the state of Illinois about 1892, and a stud-book was organized, containing pedigrees of registered stallions and mares imported, or raised in America. Two volumes have been issued. Three thousand stallions and 500 mares have been registered. Soon after the organization of the German, Hanoverian and Oldenburg Coach Horse Association, came the Oldenburg Coach Horse Association, which was also incorporated in Illinois. So far as the American public is aware, the various coach horses brought to America from Germany are known as the German Coach breed, whether Oldenburg, Hanoverian, or otherwise. This difference of title may be accounted for in part by the

variety of types. It would seem that the advocates of the breed would do well to clarify in some permanent way this apparent confusion of names.

Cleveland Bay and Yorkshire Coach Horse. Figs. 12, 13.

By *John A. Craig*

79. The Yorkshire Coach horse is an outgrowth of the Cleveland Bay Coach horse, conceded to be merely an improved type. The two are so inseparably associated that it is deemed best to consider them together. In fact, in America, they are considered to be one breed and are registered in the same stud-book.

80. History in Great Britain. — Perhaps the best evidence we have of the ancient origin of this breed is the prevalence of so many theories as to the foundation from which it started. Martin Doyle, writing in 1843, asserts that it is descended from the old war horse of Great Britain. There are other authorities, also, who state that this breed has the best claim to the distinction of being related to the horses that pulled the war chariots of the early Britons when Julius Cæsar invaded England. As a matter of fact the first records of the Cleveland horse connect it with being a pack or Chapman horse.

It is historically certain that the breed originated in Yorkshire, one of the northern counties of England. The conditions of Yorkshire were eminently suitable for the production of superior light horses. The people were horsemen, and the fertile valleys and hills, underlaid in the best grazing districts with limestone, were very productive of nutritious grass.

No specific reference to the Cleveland breed is made by any of the earliest writers. The first distinct reference to the Cleveland seems to be that made by George Culley, in his "Observations on Live Stock," published in 1801. In this reference, Culley originates the theory that the Cleveland Bay horse is the result of the mixture of the Thoroughbred with the cart horse, a theory which some writers combat so far as to say that neither the Thoroughbred nor a heavy strain like the old cart horse had anything to do with the formation of the breed. One authority,[1] who takes unusual pains to substantiate the war horse theory of Cleveland Bay origin, goes to considerable length to disprove the introduction of either cart or Thoroughbred blood, and this he has failed to accomplish, as he has been forced to acknowledge that "Probability points to a Thoroughbred Traveler as having had something to do with imparting fresh quality and courage to the Cleveland Bay." The straight croup or level hindquarter is a decided Thoroughbred characteristic, and it is a trait that most other breeds of light horses tend towards when much Thoroughbred blood is used, as has been found in the instance of both the Hackney and the French Coach horses. It is a matter of record, too, that Dunsley's Dart, one of the three sires that seem to have had most to do in establishing the Cleveland as a breed, goes back to the Darley Arabian, and the preface to the Yorkshire coach studbook so states. The old Cleveland Bay, the horse that was so popular in early days for heavy coaches and for matched teams for the London market, may not have had very much Thoroughbred blood in it, considering the amount that has been used later.

[1] Light Horses: Breeds and Management.

The best early history of the county of Yorkshire appears in three separate prize essays by different writers, published in the ninth volume of the Royal Agricultural Society (England) Report, published in 1848, from which the following reference by George Legard is taken: "Formerly, a large, powerful, bony animal was required for carriage purposes; the fashion of the present day has, however, changed this particular, and now it is necessary that the London carriage horse should be at least three parts Thoroughbred. Consequently, all traces of the original pure coaching breed or Cleveland Bay, as it was termed, are nearly obliterated." Another writer on Yorkshire in the same report, page 518, says: "The Cleveland, as a pure-bred, is losing something of its distinctiveness. It is running into a proverb that a Cleveland horse is too stiff for a hunter and too light for a coacher, but there are still remnants of the breed, though less carefully kept distinctively than may be wished by advocates of the breed."

Other causes, too, were operating to change the type of the breed and encourage the more liberal use of Thoroughbred blood. One of these was that the abundant grassland was converted into tillage-land. The high price of grains, due to the war, induced an unusual activity in farming, and a heavier horse was called for. The coal industry also demanded a heavier horse. Again, the use of the horse on the road, because of lighter vehicles, called for a lighter horse, so that, in a multitude of ways, the old type of Cleveland was undergoing dissolution. When the outlook seemed darkest, the American trade opened up, and, in 1884, the Cleveland Bay Horse Society was formed, and a stud-book established. At this time Thoroughbred blood was used very liberally. So much

stress would not be laid on the Thoroughbred blood introduced, if the writer did not believe that all our recognized breeds of light horses have more or less Thoroughbred blood in them, and all are, as a consequence, rooted deep in Oriental ancestry, chiefly the Arab.

In 1889 the Royal Agriculture Society recognized the Cleveland Bay as one of the distinct breeds of English horses, and offered prizes for it, although it was shown with the Yorkshire Coach. At the meeting of the societies, in York, as early as 1848, a few Clevelands were shown.

81. History in America. — It cannot be said that the Cleveland Bay or Yorkshire Coach horse ever had the popularity in this country that has attended the importation of some of the other breeds of light horses. Those that were imported were considered unusually good representatives, but the type and breed characteristics never found much favor. In coach or carriage horses, high and attractive front action with good hock action are essentials, combined with a stylish, smooth and symmetrical appearance, associated with quality in all parts. In these respects, the Cleveland Bay did not approach the excellence shown by other breeds.

82. Description. — In the Cleveland Stud-book (British) there is the following description of the Cleveland Bay horse which, in addition to being very accurate, is also official: "From sixteen hands one inch to sixteen hands two and one-half inches in height, he should be possessed of good, sloping shoulders, a short back, powerful loins, and long quarters. His head is rather plain than otherwise, and on the long side, but it is well carried, and his general appearance denotes strength, combined in a manner not seen in any other light horse breed. His

action is not specially high, but it is the kind for getting over the ground. In color he is bay — either light or dark — with black legs clear of hair; and black, zebra-like stripes on the arm and above the hocks are sometimes seen. These are known as the black points and are supposed to denote special purity of breeding. White, save a small star or a few white hairs in the heel, is not admissible, a blaze or white foot proclaiming at once the admixture of foreign blood "[1] (Figs. 12, 13). An early writer[2] makes the following comment on the old stamp of Cleveland Bay, just about the time the Thoroughbred was to be used most liberally: "Very many of the Cleveland horses are disfigured by having large heads and Roman noses; and it is only when these parts are, to a certain extent, concealed by

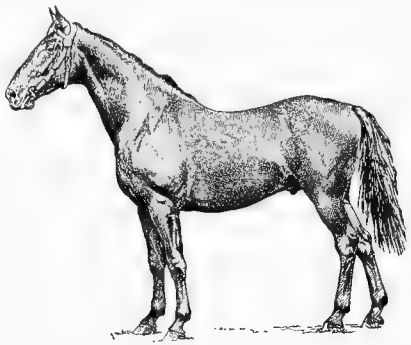


FIG. 12. — Cleveland Bay stallion.

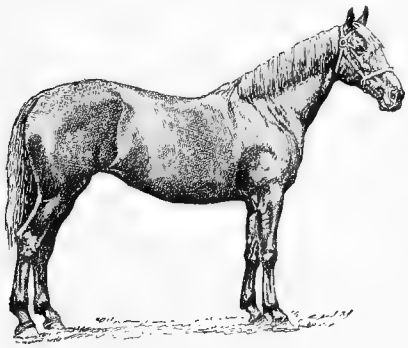


FIG. 13. — Cleveland Bay mare.

[1] Wallace, Farm Live Stock of Great Britain.
[2] John Burke, Royal Agricultural Society Report, Vol. V, 1844.

the winkers of the bridles and the trappings that adorn them, and their heads are borne up by the bearing rein, that they acquire the imposing appearance which, when well matched, so many of them possess. When stripped, a great proportion of them appear a very different sort of animal indeed, and, in all probability, a smaller and more compact sort of horse would go through double the quantity of work that they are capable of enduring. Fashion, however, is to be consulted by the breeder, to a certain extent; and, so long as he can obtain from job masters a large sum for a pair of these overgrown animals, he will do well to breed them without reference to their being unequal in point of endurance to a smaller and better-formed sort of draft horse. It is generally supposed that a horse destined for harness should not have a very oblique shoulder, as when so formed he is not capable of throwing so much of his weight into the collar as when his shoulders are more upright; but it must be remembered that grand and lofty action is highly prized in London for the purpose of show, and not for hard work, and hence a sloping shoulder is a point to be desired by the farmer who breeds carriage horses for the London market; for, as I have already observed, it is one which is mostly accompanied by high action."

In the latter part of the nineteenth century, after the organization of societies in the eighties, to promote this breed, the British public became interested in the horse to supplant oxen on the farm. At this time, too, the demand changed from a very heavy carriage horse to a lighter horse with more quality, more style and more coach or high action. The Cleveland had to veer one way or the other or become extinct. It is evident that it was changed towards the latter largely by the greater

use of Thoroughbred blood, and that resulted in the type more commonly known by the name of the Yorkshire coach horse. To indicate the tendency of the change, the following extract from the Yorkshire Coach Stud-book will be of service: "It cannot be claimed for the Yorkshire coach horse that he is a pure-bred animal, but that, on the contrary, by the judicious crossing of large-sized good-colored mares with stallions altogether or nearly Thoroughbred, a class of horses has been produced suited to the wants and circumstances of the times. By universal consent, the color should be bay or brown, with black eyes, mane and tail abundant but not curly, the height from sixteen hands to sixteen hands two inches, with fine head, sloping shoulders, strong loins, and lengthy quarters, high-stepping action, good sound feet, flat legs and abundance of bone and muscle."

83. Uses of the Cleveland Bay horse. — Enough has been said to indicate the place of the Cleveland Bay as a coach horse. It has found some favor as a roadster, especially in England. These horses are very uniform in color and markings, and they are very prepotent in transmitting these characters when crossed on common mares. Because of this their get is uniform and easily matched into teams. Their size and power and disposition adapt them for some of the work of the farm better than is the case with any of the other breeds of light horses; but, owing to their deficiency in quality and action, they have not been generally popular in American horse-breeding districts.

84. Distribution. — The Cleveland Bay horse has enjoyed some popularity, notably in South Africa. Aside from importations into America, the horse has been taken to South America, Australia and Sweden.

85. Organizations and records. — There are two stud-books in England, that of the Cleveland Bay Horse Society and that of the Coach Horse Society, devoted to the Yorkshire Coach. In 1885, the Cleveland Bay Horse Society of America was organized, which registers both the Cleveland Bay and the Yorkshire Coach. The headquarters of the society are in Aurora, Illinois. It has published two volumes of its stud-book.

CHAPTER III

THE LIGHT-HARNESS BREEDS OF HORSES

THE light-harness horse is rangy, long, light, angular, narrow and deep, that form which favors the longest, straightest stride, most rapidly done and frequently repeated. The significance of the term has already been explained in the preceding chapter.

Light-harness horses are used for road driving and harness racing and may be either trotters or pacers.

AMERICAN STANDARDBRED HORSE. Plate IV.

By *John A. Craig*

86. The trotting horse has entered more largely into the pleasures and uses of the American people than any of the other classes of light horses, although the gaited saddle horse has been to some extent a competitor in these directions in recent years. For trotting purposes on the track or on the road, no other strain or breed has approached the American Standardbred trotter. Its development to the present excellence is due wholly to the work of the American breeder, although most of the original material that entered into the foundation of the American Standardbred trotting horse came from outside sources.

87. Origin. — In common with all breeds of light horses, the American Standardbred horse (the writer uses the word " breed " advisedly, for he will show that our horses officially known under this name are as much entitled to it as any other) traces back through the Thoroughbred to the Arab. The Arab is the original source of the Thoroughbred, and nearly every breed of light horses worthy of note has drawn so largely on these two that it makes the Darley Arabian, the Byerly Turk and the Godolphin Barb the triune root of all of them. [See the articles on the Thoroughbred, the Arab, and the Barb and the Turk.]

Previous to the advent of these Eastern importations, racing had not attracted much public patronage in Great Britain. A writer [1] refers to the time of their advent as follows: Byerly Turk, about 1689; Darley Arabian, early in the eighteenth century; Godolphin Arabian (probably a Barb), 1728. Trotting matches seem then to have been unknown, but it was about that time that marked the era of running races. In 1751, Reginald Heber published the first number of the Racing Calendar, and the light-horse breeding interests of Great Britain began to assume noticeable proportions.

The Darley Arabian sired the first great Thoroughbred or running horse in Flying Childers. While Flying Childers was a stout race horse, yet it was through his brother, Bartlett's Childers, progenitor of Eclipse, that the most turf performers trace. Flying Childers sired Blaze, foaled in 1733, whose pedigree is given very completely by Captain Urton (Newmarket and Arabia). This pedigree shows that Blaze was deeply bred in Oriental blood lines, and yet from him it seems a little stream

[1] Light Horses: Breeds and Management.

PLATE IV. — Breed Types of Horses.



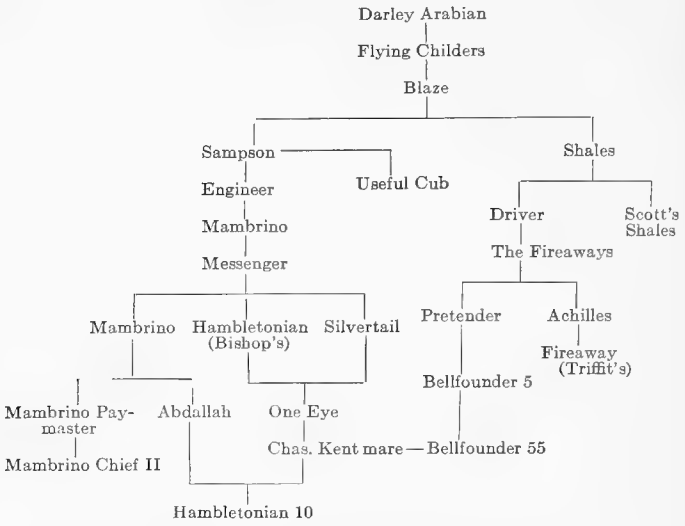
STANDARDBRED STALLION.



MORGAN STALLION.

of trotting blood emanates, which history pronounces to be the most ancient source of two modern breeds, — the American Standardbred horse and the Hackney. Perhaps the chief notoriety of Blaze in Thoroughbred circles was attained through his being the sire of the dam of Herod. He also had two sons of interest in this discussion, namely, Sampson and Shales. Sampson shows a deviation in type from other Thoroughbreds of the time, being considered a very large horse, 15.2 hands high, and said to be the largest-boned Thoroughbred horse ever bred. He was a noted and proved race horse. He sired Engineer, sire of Mambrino, sire of Messenger. He was also the grandsire of the dam of Useful Cub, that trotted seventeen miles in less than an hour. Shales, the other son of Blaze, sired Driver and Scott's Shales, both of which were trotters, and considered by careful investigators to be pillars of the Hackney.

88. Influence of Messenger. — Messenger was imported in 1788. His line is an unbroken series of trotters. He sired Mambrino, which had about a dozen trotting sons, in three of which we are chiefly interested: Mambrino, Bishop's Hambletonian and the mare Silvertail. Mambrino sired Mambrino Paymaster, and Abdallah, the former the sire of Mambrino Chief, founder of the family of that name among Standardbred horses. Abdallah sired Hambletonian 10, the founder of the Hambletonian family in the Standardbred breed. Silvertail was the dam of One Eye, the dam of the Charles Kent mare; and this mare was by Imported Bellfounder, which traces back through the Fireaways to Driver, the son of Shales, the son of Blaze. To get all this clear, the following chart is submitted:



With the advent of Messenger, the trotting instinct becomes decidedly more pronounced. The chief feature of his pedigree is that he was not only a Thoroughbred, but dips deep into the fountain sources of that breed. The records are pregnant with the performances of his progeny and also attest to his value as a progenitor of trotting speed, through the get of his sons, and the degree to which their blood permeates the pedigrees of even our most notable of modern trotters. In the catalogue of the International Stock Food Farm, there appears an exceptionally erudite pedigree of Dan Patch $1:55\frac{1}{4}$, the champion pacer of the world, and it is shown that he traces forty-three times to Messenger. The first noted performer of this strain was Topgallant. Paul Pry, a grandson of Messenger, was ridden by Woodruff 18 miles in a fraction less than 57 minutes. Lady Suffolk began racing

in public in 1838, and for fifteen years raced the most successful trotters of her time. The almost equally famous mare, Green Mountain Maid (not to be confused with the mare of the same name that was Electioneer's dam), and Princess, another notable campaigner, were of this blood. Happy Medium might also be said to be an inbred Messenger. When we consider that his daughter, Nancy Hanks, 2 : 04, was out of Nancy Lee by Dictator by Hambletonian 10, it is easy to understand how deeply bred this remarkable trotter of our day embodies Messenger blood.

Before taking up the influence of other Thoroughbred sources, there are other scattering streams of Messenger blood that should be mentioned. The Clay family, through the founder, Henry Clay, has a very distant infusion. The Morgan family, also, has a considerable infusion of Messenger blood. Among the old Canadian families having Messenger blood, one of the most prominent is that of Royal George 9. Royal George's descendants to-day bear out the fact that the Messenger family was the most prolific source of trotting speed in Canada. Another Canadian family that runs into some of our best Standardbreds originated in the Bullock horse, which traces directly to Messenger. Strathmore 408, the founder of one of the very best families of the Standardbred trotter, carried much Messenger blood.

These references, showing the infusion of Messenger blood into the families of Mambrino Chief II, Hambletonian 10, Morgan, Clay and others, will enable one to form some idea of the degree to which Messenger blood forms a widespread foundation for the present Standardbred trotter.

89. Other important contributors. — Besides Messenger, several other imported Thoroughbreds have contributed

to the breeding of the Standardbred trotter. Suffice it to mention Bonnie Scotland, Australian Trustee, Lapidis and Glencoe. The influence of these was chiefly through their American-bred sons and daughters.

90. Influence of American horses. — Let us now consider the status of the horses in use on this continent as road horses or trotters, about the time (1788) that Messenger was imported. In the earliest colonial days, most of the traveling was done on horseback, and a race most popular for journeying this way was the Narragansett pacer, bred most largely in Rhode Island. In addition, this pacer was the racing horse of the people of Rhode Island and Virginia as early as the last of the seventeenth century. Dr. McMonagle states: "The combination of these (Narragansett) with the French stock imported from France to Quebec, in 1665, produced the Canadian pacers. Out of that combination we have the Pilots, which were taken to Kentucky and proved to be the producers of some of the best trotting horses there. From the same stock we have the Columbuses, which were taken to Vermont, where they produced trotters of which the fastest went in $2:19\frac{3}{4}$ — a daughter of Phil Sheridan, the most potent sire of the family." It seems clear to the above writer that the Narragansett pacer was chiefly the original source of the Canadian blood so largely taken to Kentucky and other states at an early day.

Justin Morgan, the founder of the family of that name, was foaled in 1793 (some authorities give it 1789), and Pilot, about the first to attract the attention of the American public, was foaled about 1826. The Pilots, St. Lawrences, St. Clairs, Columbuses and Copperbottoms were taken from Canada at the beginning of the last century to Vermont, New York, Kentucky, California and other

states that were trotting-horse centers at that early day, and blended well with the other families that were forming. The Morgans were well under way at this era. The three sons that formed leading branches of the family were Sherman, foaled in 1809, Bulrush, foaled in 1812, and Woodbury, foaled in 1816. Then, too, the Bashaws and the Clays were starting under way; for Grand Bashaw was imported in 1820. He sired Andrew Jackson, foaled in 1728, which, in turn, sired Henry Clay and Long Island Black Hawk, both foaled in 1837. The latter sired Green's Bashaw in 1855. Andrew Jackson ranked and was contemporaneous with Abdallah, the latter being foaled in 1823. A little later Mambrino Chief 11 was foaled in 1844, and five years later, in 1849, Hambletonian 10 was born.

It is seen that about the middle of the past century the leading families of the Standardbred trotter had their inception, and the breed began to assume formation on this continent, for the chief families, the Canadian Pilots and others of that nationality, the Morgans, the Clays, the Mambrino Chiefs and the Hambletonians, were making it evident that there were certain blood lines more prolific than others in producing trotting speed.

91. Early trotting records. — The first trotting performance in America of which we have record is that of Yankee, at Harlem, New York, July 6, 1806, when a little less than a mile was trotted in 2 : 50. In 1859, Ethan Allen, of the Morgan line, trotted against Flora Temple, when the latter trotted a mile in 2 : 25. In the same year, George M. Patchen beat Ethan Allen in 2 : 24, and in turn was beaten by Flora Temple in 2 : 21. Dexter, which began his racing career in 1864, defeated George Wilkes in 2 : 22½. According to official records, Lady Suffolk

was the first to trot below 2 : 30, in 1845, when she won a heat in a race in 2 : 29½; Pelham, breeding unknown, in 1849 reduced this to 2 : 28; Highland Man, of Thoroughbred breeding, in 1853 reduced it to 2 : 27; Flora Temple reduced this several times, finally bringing it, in 1859, to 2 : 19¾; in 1867, Dexter reduced it to 2 : 17¼; and then Goldsmith Maid continued lowering it until 1874, when, going against time, she made a mile in 2 : 14.

92. The trotting register. — About this time the greatest interest was being taken in trotting races and trotting families, and it was further added to by the founding and compiling of the American Trotting Register by John Henry Wallace, which was begun about 1865. Wallace's Monthly and the Yearbook also gave a great impetus to the study of the pedigrees of the Standardbred horse, and out of the racing and the data collected grew the enthusiasm for better breeding.

It was not until Volume IV of the Trotting Register was published that the entries of stallions were made numerically. For that volume a standard was prepared in which performance was given precedence and pedigree a minor place. Under this standard, Volumes IV to VII, inclusive, were compiled. Various changes were made, from time to time, until we now have the following standard, as revised and adopted by the American Trotting Register Association, to take effect November 1, 1898:

"When an animal meets these requirements and is duly registered, it shall be accepted as a Standardbred trotter.

"(1) The progeny of a registered standard trotting horse and a registered standard trotting mare.

"(2) A stallion sired by a registered standard trotting horse, provided his dam and granddam were sired by

registered standard trotting horses, and he himself has a trotting record of 2 : 30 and is the sire of three trotters with records of 2 : 30 from different mares.

" (3) A mare whose sire is a registered standard trotting horse and whose dam and granddam were sired by registered standard trotting horses, provided she herself has a trotting record of 2 : 30 or is the dam of one trotter with a record of 2 : 30.

" (4) A mare sired by a registered standard trotting horse, provided she is the dam of two trotters with records of 2 : 30.

" (5) A mare sired by a registered standard trotting horse, provided her first, second and third dams are each sired by a registered standard trotting horse."

To assist still further in the establishment of a breed, the Register Association has made known (February 5, 1908) a contemplated change in the requirements for admission to the standard, looking to the elimination of all the foregoing rules except rule number one.

93. Influence of the standard. — At first, the importance of the standard, both as to performance and pedigree, had an undue influence. If a horse was standard it was thought that that was all that was necessary, and if a sire succeeded in piling up a large 2 : 30 list that was later considered the sum total. Now breeders are also considering the fact that a performance of 2 : 30, with improved tracks, sulkies and appliances, does not mean much, and they are considering the amount of extreme speed as a very desirable quality, with a long line of producing lineage in the pedigree. At this point, the importance of the breeding of the dam and her value as a producer of speed entered into the operations of most breeding farms. In conjunction with this, the money-making

value of colt trotters, because of the large stakes, began to receive more attention. Breeders also began to find out that a horse might be a fine "looker" and at the same time a good race horse or a getter of fine "lookers" and race horses.

This brings us down to the present era, during which the modern breeder seeks performance, individuality and pedigree, and it is all traceable to the several stages of evolution through which the breed has gone. To guide the beginner in breeding, it may be said that nearly all the families must necessarily be embraced in up-to-date breeding operations, for the history of the breed will show that they nearly all have desirable qualities that should be apparent in the modern representation of the Standard-bred horse.

94. Families. — The origin and importance of the heads of the several prominent trotting families has been discussed above. It remains only to call attention to the notable horses of each family.

95. The Hambletonian family, through the male line, includes the following sons of Hambletonian 10, (1) Electioneer, the sire of many producing sons. In summing up the standing of the families in regard to the production of colt trotters, Volunteer, in a very able tabulation,[1] gives Electioneer second place to George Wilkes, with thirty-three sires and seventy-one performers.

(2) George Wilkes, the sire of many notable producing sons and the champion trotting stallion, in 1868 71. In the production of colt trotters, Volunteer gives this sire first place, with forty-seven sires and ninety-eight performers.

(3) Abdallah 15, and sire of many notable producing sons. Nutwood, son of Abdallah, leads all other sires as

[1] Horse Review, January 28, 1905.

sire of producing brood mares. This line has been notable for the production of campaigners and race horses rather than for colt trotters, although Volunteer ranks it among Hambletonian 10's sons, with ten sires and sixteen performers. Goldsmith Maid, 2 : 16¾, of this strain, the champion trotter in 1871–72, and again in 1874, when she reduced her record to 2 : 14, has been conceded to be the greatest campaigner of any time.

(4) Happy Medium, ranks seventh among Hambletonian 10's sons, with two sires and six performers.

(5) Dictator. In the production of colt trotters, the writer, Volunteer, in reference already given, places Dictator fourth as his rank among the sons of Hambletonian 10, with six sires and sixteen performers.

(6) Strathmore. This line ranks very high in producing brood mares.

Among other noted sons of Hambletonian 10 are Egbert, Aberdeen, Harold (sire of Maud S, 2 : 08¾, champion trotter 1883–5, and sire of Lord Russell, sire of Kremlin, 2 : 08¼, champion stallion in 1892); Volunteer (sire of St. Julien, 2 : 11¼, champion trotter in 1880); Jay Gould, champion stallion in 1871–2. The Hambletonian family as a whole is given first place by Volunteer for siring colt trotters, with 106 sires of 223 performers to its credit.

96. The Mambrino chief family, through the male line, includes the following sons of Mambrino Chief II.

(1) Woodford Mambrino. A striking feature of this line is the purity of the trotting gait, for there are but few pacers among them.

(2) Mambrino Patchen. This line has a reputation, to which it is entitled, for having in its ranks a large number of producing brood mares. Many noted stallions,

sons of George Wilkes, have Mambrino Patchen dams, a blend that has been prolific in speed.

(3) Clark Chief.

(4) Mambrino Pilot.

97. The Clay family is generally considered to start with Henry Clay, but it really traces back through the male line to Grand Bashaw, imported in 1820 from Tripoli. The latter was fourteen and one-fourth hands high, but was reputed to be a horse of beauty and some speed for those early days. Grand Bashaw was bred to Pearl by First Consul out of Fancy by Messenger, and from this union resulted Young Bashaw, the sire of Andrew Jackson. Andrew Jackson was a trotter of note in his day, especially as a two-miler. The Long Island Black Hawk line has given us Bashaw 50, and Wapsie. Bashaw 50 is the sire of the dam of Joe Young, 2 : 18. Henry Clay sired Cassius M. Clay 18, which sired George M. Patchen, 2 : 23½, champion trotting stallion in 1859 60, and sire of four trotters. Perhaps the most prolific speed line comes through Cassius M. Clay 20, a son of Cassius M. Clay 18, for Harry Clay, 2 : 29, with four trotters in the list and sire of the dam of Electioneer, is by C. M. Clay 20, and Clay Pilot is also by the latter. This family attains its notoriety most largely through the remarkably great brood mares that are of this descent, among which may be mentioned Green Mountain Maid (by Harry Clay), dam of nine trotters, including Electioneer and Beautiful Bells, dam of eleven trotters and eight producing sires.

98. The Morgan family takes its name from Justin Morgan by True Briton by Imported Traveller by Morton's Traveller, which traces in near and direct lines to the Byerly Turk, Curwen's Bay Barb, the Lowther Barb, Bloody Buttocks and the Godolphin Arabian. In his

book, published in 1857, D. C. Lindsley describes Justin Morgan as about fourteen hands high and weighing 950 pounds. His color was dark bay, with black points. He was a very stylish horse, of indomitable, though easily controllable spirit. The three sons of Justin Morgan that were most prolific as sources of trotters were Sherman, Woodbury and Bulrush. Sherman sired Black Hawk 5, the sire of Ethan Allen, 2 : 28, champion trotting stallion in 1858. Ethan Allen sired Daniel Lambert. Black Hawk 5 also sired King Herod, sire of Herod, 2 : 24½.

From the Bulrush line comes Old Morrill, sire of Young Morrill, sire of Winthrop Morrill. The other son of Justin Morgan, namely, Woodbury, sired Morgan Eagle, whose son of the same name got Magna Charta. Woodbury also sired Barnard Morgan, which in turn sired Vermont Morgan, sire of Golddust, the founder of that strain. The fastest trotters of the Morgan line include Lord Clinton, 2 : 08¾, Lamp Girl and Ethel Downs.

While the Morgan family has produced considerable speed, yet its popularity is based chiefly on the endurance, beauty and style of its members (Plate IV). Pacers are exceptionally rare among them, and the purity of their action being bold, free and tireless, is perhaps the most valuable attribute of the family. In this connection, it may be stated that the government, having recognized the tractable and energetic disposition of the Morgans, as well as their well-established reputation for endurance, has established a breeding station in Vermont in coöperation with the Vermont Agricultural Experiment Station, with the object of "saving the Morgan." This stud is headed by the stallion General Gates by Denning Allen (the sire of Lord Clinton 2 : 08¾) and out of a Thoroughbred mare. Carmon, the stallion at the head of the stud at Fort Collins,

Colorado, in the efforts to establish a breed of American carriage horses, carries some Morgan blood.

The blood of the Morgan horse has become rather widely scattered over America, although there are comparatively few Morgans available. Most of these are found in New England and other eastern states, although there are pure-blooded Morgans in parts of Iowa, Indiana, Illinois, Kentucky and Missouri. The American Morgan Horse Register is published at Middlebury, Vermont.

99. The Pilot family takes its name from old Pilot, a Canadian pacer from near Montreal, afterwards trained at both gaits. After passing through many hands and sojourning in Connecticut, New York, and Louisiana, he reached Kentucky in 1832. There he sired Pilot Jr., out of a mare of Thoroughbred breeding. He sired eight trotters in the list, but his blood was chiefly valuable through the female line because of the number of great brood mares he sired. Among the brood mares sired by Pilot Jr., Miss Russell is most noted.

100. Other families. — In addition to the foregoing recognized families, there are a number of others that have been very aptly termed the submerged families. Many of these are of Thoroughbred origin, but they are mostly descended from Canadian pacers. Among those of Thoroughbred breeding are American Star 14, sire of the dams of Guy, $2:09\frac{1}{4}$, Dexter, $2:17\frac{1}{2}$, Robert McGregor, $2:17\frac{1}{2}$, Aberdeen and other noted sires. The Canadian pacing families are discussed in more detail in the history of the Standardbred pacing horse.

101. Description. — There are many pronounced types among the Standardbred trotting horses (Plate III). Some are speed marvels, as Lou Dillon, slim, graceful and of high nervous organization: others are of the campaigner type,

stronger-framed, fuller-muscled, of larger size, with controllable disposition, so as to be easily rated, and of remarkable strength and durability. Of such is Sweet Marie. The most successful blend of these two types is Cresceus, both a speed marvel and a campaigner. A pen description of him would embody the attributes of the best type so far evolved. In general, such a horse should be about sixteen hands high, upstanding, well set up, and have that poise of body which horsemen refer to when they say a horse is " above himself," either standing or in action. The head, proportioned evenly with the other parts, is clean-cut and carried high. The neck has length and is muscular, making a noticeable crest in the stallion. The shoulder is deep, covered with muscle, and the chest is low and only moderately wide. The fore-leg is long from elbow to knee, and short from knee to fetlock. The knee is wide in front and sharp behind, and the tendon drops from there almost vertically to the pastern. The pasterns slope nicely, and the feet, both before and behind, are even in size, moderately large, and of a healthy, oily color. The back is well covered with muscle and is rounding, and the swelling muscles of the loin cause it to rise slightly; those of the hindquarters make the croup plump and the quarters full and deep. The leg is long from hip point to hock, and short from there to the pastern. The web of the hock is thin and the leg below decidedly fluted. The action should be clean, quick and frictionless. Above all, the disposition should be easily controllable, and yet ever ready to race with zest. Good weights are 900 pounds for a mare and perhaps 1150 pounds for a stallion. The color is not fixed, but brown and bay are very common.

102. Uses for racing. — The Standardbred trotter occupies a position about equally divided between pleas-

ure and utility. The degree to which the trotter embraces the former field depends on the popularity of racing, both in the circuits and for matinée purposes. Trotting races are an adjunct of nearly every county fair, and occupy a prominent position at all state fairs. However much the attendant gambling may be deplored, the fact remains that trotting and pacing races are popular, and they also assist in developing a speedier and more durable breed of horses. The racing is under the jurisdiction of the National Trotting Association and the American Trotting Register Association, the rules governing the races, under the auspices of either, being almost identical; and they prevail at all race meetings and on all tracks over which officially accepted records are made.

After having finished their racing career and having lowered their records so that their money-winning capacity is reduced, many trotters are purchased for matinée racing in our larger cities. This sport has grown in popularity to such an extent that a National League of Amateur Driving Clubs has been formed.

103. Use as a roadster. — It is as a roadster that the trotting-bred horse is most useful. This demands a horse of medium height, 15.2 to 16 hands, of graceful lines, without the least tendency to coarseness in any part. Quality of bone, cleanness of limbs, defined tendons and all other characteristics that forecast durability, should be very much in evidence. With it all there is a refinement of form that differentiates this type from the coach or heavy-harness class. Easy, elastic action and an ever-present willingness to cover the ground in jaunty style are desirable characteristics. At an early day, the Thoroughbred was recommended strongly for crossing on common light mares, and such breeding resulted, in many

instances, in roadsters noted for their ability to cover long distances at the trot, and to continue it day after day. The Morgan horse, however, was soon recognized as the strain possessing the highest type of roadster characteristics, chiefly because of its indomitable perseverance and endurance, its willingness, and the style and buoyance with which it stood the strain of continuous road riding. The roadster, in addition to having style, action and durable individuality, must be in type in harmony with the light harness and light, easy-running road rigs now popular. A heavy, slow, but maybe stylish-moving horse is as much out of place before a road rig as a slim racer-like horse would be in heavy harness. While there are many speedy trotters that are far from pleasurable road horses, because the ability to go fast for a short distance is not the chief requirement of a road horse, yet the result of the continuous racing which the trotter has undergone, undoubtedly has given it the durability and the "do or die" spirit that is a valuable attribute of the roadster. At this day some speed is required of the roadster.

104. Use as heavy-harness horse. — Of more recent years, attention has been drawn to the fact that some families of the American Standardbred horse have shown marked excellence for heavy-harness use. During the time when the horse-shows were perhaps most popular, about 1890, the breeding of the trotting horse was under a depression. For that reason, many stallions, well bred in trotting lines but of heavy-harness conformation and action, were purchased at gelding prices and shown in heavy harness classes at the leading horse-shows. Undoubtedly they may properly be called freaks, for they were not bred for this purpose, but that does not dispose of the worth of the acquisition. The trotting-bred heavy-

harness horse and high stepper became a strong competitor of the Hackney, and in some instances defeated the latter in these classes. The result was that the government realized the possibility of establishing a family or, in time, a breed of heavy-harness horses as an offshoot of the Standardbred trotter. The Colorado Experiment Station conducted the work under the auspices of the Department of Agriculture at Washington. Carmon 32917, a grandson of Robert McGregor, $2:17\frac{1}{2}$, is at the head of the stud. Previous to purchase by the government, he had been a prominent winner at leading horse-shows in the harness classes under the name of Glorious Thunder Cloud.

105. Use for breeding "cow ponies." — At this point, to indicate further the versatility of the Standardbred trotter, it will not be out of place to mention the fact that on many of the large cattle ranches, where "cow ponies," as they are called, are in heavy demand, the Standardbred trotter is being used as a sire in preference to the Thoroughbred. The reason for this preference was given the writer to be the better disposition of the Standardbred as compared with the Thoroughbred, said to be a result of the restraint under which the trotting horse has been held, and the necessity of a trotter having a controllable disposition.

106. Distribution. — Other governments have recognized the worth of the Standardbred trotter, for recently those of Japan and China have made large importations. Extensive sales of Standardbred trotters of high merit have been made to prominent horse-lovers and breeders in Russia, France, Austria, Italy, Germany, England, Australia and the South American countries.

107. Organizations and records. — The National Trotting Association was organized in 1870. The office of the

present secretary is at Hartford, Conn. The American Trotting Association was organized in 1887, and has headquarters in Chicago. The American Trotting Register appeared in 1868, with J. H. Wallace as publisher. The first volume contained some 3000 entries; 62,000 stallions and about 250,000 mares have been registered to date. Wallace also established the Yearbook, now in its thirtieth volume. The Register, the Yearbook, and Wallace's Monthly were disposed of by Mr. Wallace to the American Trotting Register Association, in 1891, and the latter now publishes the Register and the Yearbook. As has been said, a League of Amateur Driving Clubs has been formed, with headquarters in Boston. This league publishes a yearbook, giving a summary of matinée races and the time made. The first volume includes the races of 1901–2.

The Pacing Horse. Fig. 14.

By *John A. Craig*

108. The pacer is not a separate and distinct breed of horses. The name is applied to a class of horses that are characterized by the pacing gait. The American Standardbred trotting horse breed is the most potent source of pacers.

109. History in Europe. — From the earliest writings referring to horses and from the earliest representations of them in sculptured frieze, we learn that pacing or ambling was a gait common to the horse in earliest times. This gait is shown in Greek sculpture and referred to in the publications of some of the earliest writers in Spain, Great Britain and America. It is unnecessary here to recount these early references, for they are accessible in

nearly every work devoted to the horse; and it is equally unnecessary to attempt to locate the origin of the gait, for there is no feature connected with the history of the horse that depends more on legendary lore than this. Suffice it to say that in Spain, where the saddle horse as a pack animal and for traveling was much in vogue, the pacing or ambling gait was considered a very necessary attribute; and the same is true in perhaps a lesser degree when the early history of the pacer in Great Britain is considered.

110. History in America. — It is in America in colonial days that the pacer in the New England states seemed to reach the highest point of utility; from there and from Canada the pacer seems to have spread. The Narragansett pacer of Rhode Island attained a wide notoriety over the New England states in colonial times, but with the improvement of roads and the abandonment of horseback riding for long-distance traveling, this strain became extinct. Whether or not it drifted over into Canada and formed the foundation for the remarkable number of pacers common to the Province of Quebec, is not definitely known, nor is there any other satisfactory supposition as to the origin of the Canadian pacing families. It would seem more plausible to account for the Canadian pacers in this way than to accredit them to French origin, for they were very dissimilar to the French horses of that time in their characteristics.

The theory that the French-Canadian pacer is an offshoot of the Thoroughbred has also been advanced and in some instances it may be proved, but in most instances the originator of the strain was by a Thoroughbred out of a pacing mare. Again, it has been asserted that the French-Canadian horse is a descendant of the French

Percheron, reduced in size by the more rigorous conditions of climate. This seems to the writer the most untenable of all the theories. Long observation of the more common types prevalent among the French-Canadian people, and attendance at their winter ice-racing, where the most of those with speed would congregate, substantiate the writer's opinion. In all its characteristics the French-Canadian comes nearer the Morgan in some traits and nearer the Thoroughbred in others, than those of any other breed or family. While like the Morgan in type and style of going when trotting, yet it must be admitted there are very few pacers among the Morgans. Also, not many of the Thoroughbreds pace unless there is a strain of pacing through the dam's side. The French-Canadian families, especially those showing inclinations to pace, although most of them were double-gaited, have in time become submerged in the foundation of other families which are now of most prominence. Among the Canadian families of early origin, the most noted spring from Copperbottom, Pilot, Daniel Boone, Drennon, Davy Crockett, Corbeau, St. Lawrence, St. Clair. Of those of more distinctly Thoroughbred origin, might be mentioned Smuggler, Clear Grit, Uwharie and Hiatogas, while perhaps the two most noted of all, the Hals, springing from Tom Hal in Tennessee and Blue Bull in Indiana, had their origin so shrouded in misty legend that it is not even advisable to speculate on it. From all that we know, it may be safe to assume that the Thoroughbred horse has had as much to do with the evolution of the pacer as any other up to the time of the introduction of the standards, although we have to admit that there seems to have been an original stock on which the Thoroughbred, as a scion, was grafted with more or less success.

The Copperbottoms and Pilots made a reputation in Kentucky at an early time; the Columbus family did the same in New England, the St. Clairs in California, the St. Lawrences in Michigan, the Blue Bulls in Indiana and Ohio, the Hiatogas in Virginia, and the Hals in Tennessee. While all these were in a general way known as pacers, yet with most of them the gait was interchangeable, and many of them could trot as fast as they could pace, and very few of them sired a majority of pacers. As might be expected, the fastest of their get were pacers, and those made the reputation of the sire, while as a matter of fact that sire would be getting mostly trotters. For example, Blue Bull, a fast pacer himself and a getter of some fast pacers, sired fifty-six trotters out of a total of sixty of his in the list. So also with many of the others, with the notable exception of the Hal family. This is the leading family of pacers that is justly entitled to be called a family of pacers, and the writer does not know of any other like it, pacing in origin and breeding on at the pacing gait.

111. Present position of the pacer. — What has been written may enable the reader to understand the position of the pacer in the earliest days. But to explain the position in our own day is almost beyond the possibilities of the most earnest student, so intertwined in breeding and development are the trotting and pacing gaits. When the standard for Standardbred horses was established, pacers and trotters came in on almost equal footing. At the races, too, trotters and pacers at that time mostly competed on equal footing, many of the purses being open-class for trotters or pacers. It was soon found that the pacers were naturally faster than the trotters, for they would win most of the races when both competed on

equal footing. The craze for speed and the desire to put the get of stallions in the list, increased the popularity of the pacer at a bound.

It was found, too, that it was a very easy matter to change the gait of most horses from trotting to pacing, especially with the use of hobbles or hopples, as they are interchangeably designated. This leads us to say that the difference in the gaits is simply that in the pacer the two legs on the same side move together, while in the trotter the movement is diagonal. By putting a horse in hobbles, he must either pace or break the hobbles, which are so strong as to be almost unbreakable, or be thrown. Hobbles have been permitted in races, but owing to the danger to the driver if any entanglement occurs, they have not become popular except to keep horses that show a tendency to pace at that gait or train them until they can do without them. At its meeting on February 5, 1908, the American Trotting Register Association adopted a resolution against the use of hobbles. It was found that a change in the shoeing, such as shoeing very light all round, would encourage a horse to pace; and even the shifting of the bit may accomplish the same purpose.

After the craze for speed at any cost had subsided somewhat, and a different time limit been set for the pacer before he could become standard, the winnings possible for green trotters increased, and with that the purses and colt stakes for trotters were augmented so that trotting as a part of the sport of racing became again more than on a par with pacing. The pacing standard now in force is appended. It should be said that it is identical with the trotting standard except that the word "pacer" is substituted for the word "trotter" and the word "pacing"

for the word " trotting," and the speed standard is changed from 2 : 30 to 2 : 25 ; furthermore, Rule 6 is an addition.

112. The pacing standard. — " When an animal meets these requirements and is duly registered, it shall be accepted as a Standardbred pacer :

" (1) The progeny of a registered standard pacing horse and a registered standard pacing mare.

" (2) Any stallion sired by a registered standard pacing horse, provided his dam and granddam were sired by registered standard pacing horses and he himself has a pacing record of 2 : 25 and is the sire of three pacers with records of 2 : 25 from different mares.

" (3) A mare whose sire is a registered standard pacing horse and whose dam and granddam were sired by registered standard pacing horses, provided she herself has a pacing record of 2 : 25 or is the dam of one pacer with a record of 2 : 25.

" (4) A mare sired by a registered standard pacing horse, provided she is the dam of two pacers with records of 2 : 25.

" (5) A mare sired by a registered standard pacing horse, provided her first, second and third dams are each sired by a registered standard pacing horse.

" (6) The progeny of a registered standard trotting horse out of a registered standard pacing mare, or of a registered standard pacing horse out of a registered standard trotting mare."

113. Families. — Among the modern Standardbred horses it is not possible to separate the families into those that pace as a family characteristic, and those that trot. The Hal family is composed most distinctly of pacers, for Tom Hal Jr. has fourteen in the list, all pacers, while Brown Hal, one son, has seventy-eight, all pacers. The

latter has two noted sons, Star Pointer, with fifteen in the list, all pacers, and Hal Dillard, with forty-two in the list, only three of which are pacers. In some instances there is a union of one of the leading families with the Hal strain which produces pacers consistently. For instance, Direct, $2:05\frac{1}{2}$, of the Dictator family is a pacer and has sired forty-two pacers and thirty-seven trotters. He sired Direct Hal p., $2:04\frac{1}{4}$, a leading sire of pacers, and a most successful campaigner. While some of the families of Standardbreds show a stronger tendency to trot than to pace, the reverse is not common, although it is possible that in time this may result, as it is ostensibly the aim to establish two separate standards. The champion pacing stallion, Dan Patch, $1:55\frac{1}{4}$, is sired by Joe Patchen, a noted race horse and a pacer, sired by Patchen Wilkes of the George Wilkes-Mambrino-Patchen cross; and the dam of Joe Patchen was by Joe Young of Morgan breeding. The dam of Dan Patch was Zelicia by Wilkesberry, which was a Wilkes on his sire's side and a Clay on his dam's. There is very little of what might be called pacing blood in her pedigree, although the Wilkes strain and the Abdallah 15 strain have produced many fast pacers. On the other hand, Lou Dillon, a champion trotter, $1:58\frac{1}{2}$, comes as near being of a pacing line through her sire as almost any noteworthy pacer. At present it does not seem likely that the pacing families will become separate from the trotting families.

114. Description. — It was a prevalent opinion some years ago that there was a type evolving among pacers, but this has been largely dispelled. Dan Patch (Fig. 14) is as smooth and graceful in line of mold as it would be possible to conceive an ideal, and Joe Patchen is con-

sidered among horse-lovers, no matter what their preference as to breed, as being very nearly a model in finish, symmetry and style. So many old-time pacers were steep in the hindquarters and some crooked in the hocks and pitched forward, that it became the opinion of a coterie that a pacing type was being evolved. Time demonstrated with the pacer as with the trotter, that symmetry and graceful lines and style in action or repose were not opposed to speed.

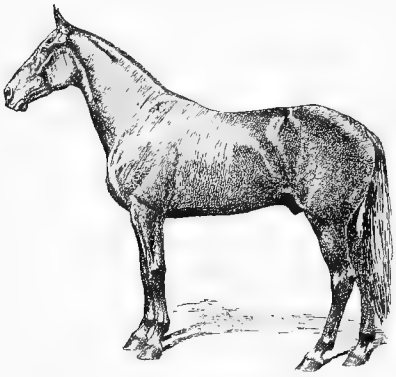


FIG. 14. — Standardbred pacing stallion.

115. Uses of the pacer. — For racing purposes the pacer cannot be said to equal the trotter as a money-maker, as the purses are not generally so large; and the colt stakes for the trotters are also large. For road purposes in general, the pacer is not so popular as the trotter, although for matinée uses it is held in high favor. For the speedway, the pacer is decidedly popular for several reasons. One is that in brushing, a pacer can get away quicker than a trotter; and usually, also, it is the faster gait. Pacing is an easier gait, and in pacing a horse does not strike the pavement so hard, a matter of some consideration on hard roads. For usage on common roads or in snow, the pacer cannot be said to be as popular as the trotter. The pacer has not, as a rule, so evenly rated a gait as the trotter. Very often it is a slow

amble or full speed. However, many pacers jog-trot, and when forced to full speed at a trot strike into a pace when urged to do more.

It is considered by some persons that the pace is an ungainly gait, but it is to be remembered that, like all other gaits, there is a difference in the classes of it. Some horses pitch in such a way as to be lumbering in gait, but others go as true and as frictionless as the piston of an engine. Again, for road-riders, the pacer does not develop, as a rule, into a puller, which is sometimes so true of the trotter. While the pacing gait is generally considered to be the faster of the two gaits, five seconds is thought to about express the difference in time. The pacer, as a rule, needs the lighter road rig, for the trotter seems to have the advantage slightly in pulling power.

116. Distribution. — From the New England states and Canada, especially Quebec, the pacer was gradually scattered all over America, and is now found more particularly in Tennessee, Kentucky, Ohio, Missouri, California and Indiana.

117. Organizations and records. — The same registries and the same associations look after the interests of the pacers as those that have the Standardbred trotter under their auspices.

Literature. — Busby, The Trotting and Pacing Horse in America, New York (1904); Helm, American Roadsters and Trotting Horses, Chicago (1878); Lindsley, Morgan Horses, New York (1857); Lowe, Breeding Race Horses by the Figure System, New York (1898); Marvin, Training the Trotting Horse, New York (1892); Merwin, Road, Track and Stable, Boston (1893); Splan, Life with the Trotters, Chicago (1889); Woodruff, The Trotting Horse of America, Philadelphia (1868).

Orloff Horse. Figs. 15, 16.

By *Carl W. Gay*

118. The Russian Orloff takes its name from Count Alexis Orloff, who founded the breed. It has been developed in Russia as a light-harness horse, harness racing being extremely popular there as in this country.

119. History in Russia. — The real origin of the Orloff was in the gray Arab stallion Smetanka which Count Orloff secured in the Orient. He was mated with Thoroughbred mares chiefly, but his most notable son, Polkan I, was out of a Danish mare. Polkan I in turn sired Bars I, the dam of whom was a Dutch mare, described as having a good way of going at the trot. The quarterbred Bars I was bred to Thoroughbred mares and many of his descendants were inbred. Count Orloff began his work in 1777, and in 1845 the stud which had passed to his daughter, and consisted of 21 stallions and 194 mares, was taken over by the Russian government.

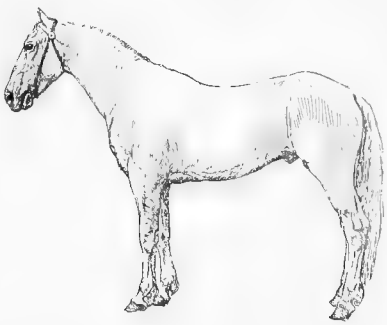


Fig. 15. — Orloff stallion.

120. History in America. — The largest single importation of Orloffs was of eighteen head at the time of the World's Columbian Exposition, where they were shown. While American trotters have been exported to Russia in large numbers and raced successfully there, it cannot be said that there has been any reciprocal favor shown for

the Orloff breed in this country. Only a comparatively few individuals have been imported and most of these have been used as heavy-harness horses. When C. K. G. Billings returned from Russia with his wonderful string of world record trotters in 1913, it was reported that he brought a few Orloff mares to be bred to The Harvester.

121. Description. — The Orloff is characterized by size and substance even to the extent of being somewhat gross in comparison with our American trotters. They usually stand full sixteen hands in height and frequently weight 1250 pounds. They are less of the extreme speed form than our trotters, yet they lack the rotundity, symmetry and style of the heavy-harness breeds. Orloffs are quite regularly gray or black, although chestnuts and bays are not at all uncommon (Figs. 15, 16).

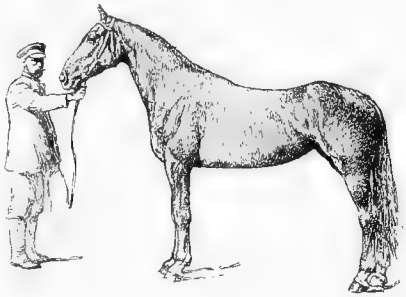


FIG. 16. — Orloff mare.

122. Uses. — In Russia, the only country in which the Orloffs are found in any number, these horses are used to the three-horse troika.

123. Organizations and records. — There is no American Registry Association for Orloffs, their foreign certificates being accepted here. Since the breed is practically controlled by the Russian government, the official register is the Record of the Imperial Russian Horse Breeding Society.

CHAPTER IV

THE SADDLE BREEDS OF HORSES

Saddle horses of whatever breeding should first show their ability to carry weight, in short backs, closely coupled, muscular loins and comparatively short, stout legs. The feature of conformation that serves to distinguish the saddle horse most is the long sloping shoulder, and the consequent high withers extending well back; also the long, shapely, supple neck so essential to a light forehand. They must also have a sure, springy step and a collected way of going, in order to give a safe and satisfactory ride.

Thoroughbred Horse. Plate V. Figs. 17–19.

By *Carl W. Gay*

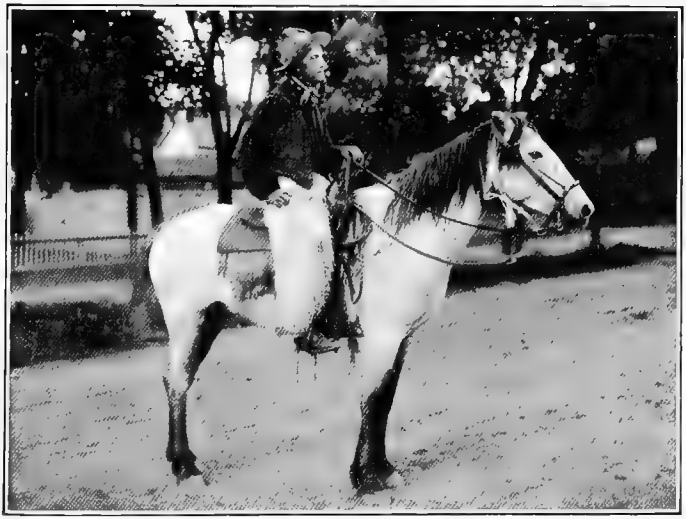
124. The term Thoroughbred, in its correct application, is restricted to designate the English race horse or runner, only. The incorrect use of the term, as synonymous with pure-bred, is so common as to lead to much confusion and misunderstanding. A " thoroughbred " trotter would be an anomaly and a " thoroughbred " Percheron impossible. When it is intended to indicate the total absence of alien blood, pure-bred is the proper adjective. Thoroughbred is a noun.

There is no one best breed of horses, but because of a more general adaptability to a wider range of conditions

PLATE V. — Breed Types of Horses.



Thoroughbred Stallion.



Cow Pony or Bronco.

and a consequent broader usefulness, or as marking some special achievement in the breeding art, we may justly assign to one breed more importance than to others. The importance of the Thoroughbred is attested by the following facts: It was the first breed improved and the one on which the principles of breeding have been most systematically practiced; barring the Oriental, from which the Thoroughbred is derived, his is the purest lineage possessed by any breed, and for it the first stud-book for the recording of pedigrees was established; Thoroughbred blood has been most freely drawn upon in the improvement of other breeds and types — in fact, there is scarcely a harness or saddle horse that does not owe its merit indirectly to the Thoroughbred crosses in its ancestry; the Thoroughbred has been a most important means of indulging a love of sport on the turf and in the field for three centuries.

125. History in Great Britain.— A knowledge of the early horse history of Great Britain is necessary for a complete understanding of the origin of the Thoroughbred. It is interesting to note first, that there are no indications of any horses having been indigenous to Britain, although the most recent researches reported by Ridgeway indicate that horses of the north African type were in Ireland as early as the sixth century. The horses with which Britain was first stocked are generally held to have been derived from the pony types native to northern Europe, and consequently were small in stature. We know that the first efforts at improvement were in the way of increasing the size. The Norsemen were the first to introduce the war horse, and the blood of Normandy and Flanders was thereafter drawn on in an attempt to produce horses of a sufficient size and strength to carry

an armored knight. Among other edicts enacted in the reign of Henry VIII, was one limiting the size of sires to be used to not less than fourteen hands.

The horse as a feature in the sports of the times is first mentioned in the latter half of the twelfth century, when races of a primitive character and mounted sports were conducted at Smithfield, as a recreation for the people. The first race reported was run between Richard II and the Earl of Arundel in 1377. Henry VIII was the first king who raced horses for his own amusement. In 1580, the horses of Great Britain were classified by Thomas Blundeville as follows: "a breed of Great Horses meete for warre and to serve in the field," "ambling horses of a meane stature for to journey and travel by the waie," "a race of swift runners to run for wagers or to gallop the buck" and "a breed only for draftes or burden." It is important to note that at this early time horses were extensively used for racing and hunting. They were undoubtedly the descendants of the Barbs and Turks, which are known to have been in Great Britain at an early date, the Arab not having been introduced until 1616. Racing increased in popularity under James I, who imported the first Arabian for the purpose of breeding horses of greater speed. After the example of James I, other and frequent importations of Arabians, Barbs, and Turks were made from the Orient and Spain. By the time of Charles I, the sentiment in favor of racing had become so strong that much concern was felt for the defense of the kingdom, as so little attention was then being paid to the production of the Great or War horse.

The real era of the Thoroughbred is usually dated from the time of Charles II (1660–1685). He not only took an active interest in racing, but imported direct from the

Levant. His most notable importation was of the Barb mares, commonly known as the King's or Royal mares, which are regarded by some authorities as the foundation dams of the true blood horse. Others, however, doubt the accuracy of thus limiting the base of the breed.

126. Important sires. — The three most important oriental sires in the foundation of the Thoroughbred were the Darley Arabian, now known to have been a pure-bred Anazeh, imported in 1706; the Byerly Turk, imported in 1689; and the Godolphin Barb, brought in 1724 from Paris, where he was found hauling a water-cart, having been discarded, no doubt, by some member of the royal family to whom he had been presented. Eclipse, the greatest horse of his kind, is a direct descendant four generations removed from the Darley Arabian, as were also Blaze, three generations removed, the foundation Hackney sire, and Imported Messenger, six generations removed, the foundation American trotter sire. From the Byerly Turk comes King Herod, another noted sire, while Matchem, a great race horse and successful sire, was a grandson of the Godolphin Barb. Furthermore, Justin Morgan, who shares honors with Imp. Messenger, already referred to as a foundation American sire, is said to be a direct descendant of Godolphin Barb. It is claimed that American Thoroughbreds, as a rule, are less remote from their oriental ancestry than the average English horse, and that they follow more closely their type.

127. Purpose for which bred. — Thoroughbreds have been bred for nearly three centuries under a most rigid system of selection, turf performance alone being the standard. The high degree of equine perfection exemplified by the best Thoroughbred individuals, as well as the prominence to which the breed has attained, can be at-

tributed in large part, no doubt, to the fact that the destiny of the Thoroughbred has been cast with men who had unlimited resources on which to draw.

Time and altered customs have wrought important changes in the system under which these horses are raced, with some corresponding modification in type. Whereas, up to 1880 these races had been in four-mile heats, the custom now is to run dashes, carry less weight, and start as two-year-olds, a custom, which, like the horse, has come to us from England. The wisdom of the present course is doubted by some who hold the stamina and weight-carrying ability of the old four-milers in higher esteem than the great flights of extreme speed for a few furlongs, shown by our modern sprinters. Conflicting opinions are expressed, too, with regard to the probability of these twentieth-century horses being capable of lowering the distance-records of a century ago. Those who know, however, are reluctant to admit that the Thoroughbred of to-day is a degenerate in any sense, and, in support of their view, they maintain that in olden times the horses ran but a few races a year, with no handicaps, and they were especially trained for each race. Against this, the modern horse is credited with being kept in racing form nine months in the year, running many races in a single season, and these closely contested because of the number of contestants and the method of adjusting handicaps.

The three classic events run in England are the Derby, the St. Leger and the Oaks. The first Derby was run May 4, 1780, for a stake valued at fifty guineas, open to three-year-olds, colts to carry eight stone, fillies seven stone eleven pounds, over a distance of one mile. It was won by Diomed. The first and only American-bred horse to win the English Derby was Iroquois, a line descendant of

Diomed, racing in the colors of Mr. Pierre Lorillard. This horse, the same season, won the St. Leger, a most notable feat in view of the fact that both Derby and St. Leger have been won by the same horse but nine times in over a century of racing.

128. History in America. — It is natural that this country should have been the first, after England, to take up the Thoroughbred and systematically breed and race him. It was not long after the colonization of the southern provinces by the English gentry that there was established an American turf with its Thoroughbred studs.

In connection with the introduction of the Thoroughbred into America, some mention of the so-called native horses should be made. While there is abundant evidence in the way of fossil remains of the presence and possibly the evolution of a prehistoric horse on the American continent, still there were no horses of any description found here by Columbus. He it was who on his second expedition made the first importation of which we have any record. These horses are thought by some to have perished soon after their arrival, while other authorities assert that they eventually gained the mainland and constitute a part of our foundation stock. Cortez, in his conquest of Mexico in 1519, is credited with having landed the first horses on American soil. In 1527, Cabeza de Vaca brought horses to St. Augustine, Florida, which were afterward liberated. Again, horses constituted a part of the equipment of De Soto's expedition in 1541, on which he discovered the Mississippi. Thus far these were all Spanish horses of oriental extraction — the same original source from which the Thoroughbred sprang. In 1604, the French took horses into Nova Scotia, and four years later introduced them into Canada. Then followed the

importation of one stallion and six mares into Virginia from England. Dutch horses arrived at New Netherlands in 1625, and in 1629 the first horses (Thoroughbreds) to inhabit New England arrived at Boston from England. As early as 1678, there ranged over parts of the Mississippi valley vast bands of wild horses, the descendants of those escaped or liberated from early conquests and expeditions.

In view of the character of the early settlers of Virginia, New York and New England, respectively, it is not strange that the cradle of the Thoroughbred in America should have been in Virginia. Horse-racing was not consistent with the Puritan traditions of New Englanders, and the Dutchman's horse in New York was essentially a beast of burden. It remained, therefore, for the cavaliers of Virginia, North Carolina and Maryland to become sponsors for this horse, which was later to play such an important part in American sporting and industrial progress.

The first race horse imported to America is thought to have been Bulle Rock, son of the Darley Arabian, brought into Virginia in 1730. The first racing organization of which we have record was formed in 1760 at Charleston, South Carolina. Subsequently there were brought over many of England's best horses, the most notable of which was Diomed, winner of the first English Derby. This horse, imported when twenty-one years old, in 1798, by Colonel Hoomes, much against the advice of his counselors, is regarded as the real progenitor of the American race horse. In a regular line of descent from him come Sir Archy, the first truly American Thoroughbred; Boston, his grandson, conceded to have been the greatest American race horse; and, in turn, his son, Lexington, a scarcely less remarkable performer than Boston, and a most influential sire, especially through the female line, in the

American Standardbred and Saddle families, as well as of the Thoroughbred.

The trend of Thoroughbred sentiment was first northward from its original seat, about the middle of the eighteenth century, centering later about the Union course on Long Island, then westward into Kentucky and Tennessee, where the first race-course was established at Lexington, some time previous to the organization of a chartered association in 1828. The environment of Kentucky proved so congenial to the horses bred there, that it soon attained its premier position among the horse-producing states. Then, in the natural course of events, some of the best blood of Virginia and Kentucky found its way into California, and there were soon founded studs which later achieved national fame. The Civil War proved a serious set-back to the breeding operations then well under way, but the Thoroughbred soon recovered from this interruption, and with the reëstablishment of affairs on a stable basis, became generally distributed throughout the length and breadth of the land. He is still most extensively bred in those regions where he first came to his own. Notable patrons of the Thoroughbred in America have been Washington, Jackson, Clay, Jefferson and John Randolph.

129. Description. — The Thoroughbred conforms to and is the truest exponent of the long, lithe, rangy, deep, narrow, angular type consistent with speed, which is in such striking contrast to the low, broad, compact and massive form significant of power in the draft horse. It is possible, however, to enumerate certain characters that are more particularly and distinctly Thoroughbred than the type, which is more or less common to all speed horses. These characters are derived in part from the oriental progenitors, while some may be regarded as strictly Thor-

oughbred in their origin. Most characteristic are the extreme refinement and clear definition of features, the small, proportioned head and ear, the straight face line, the neat throttle, long sloping shoulders, high withers, muscular quarters, and clean, hard, flat bone. These are associated with a low, pointing, close-to-the-ground way of going, which insures the greatest stride with the least effort. Then, in addition to a racy form, the Thoroughbred has a racy temperament, possessing a most highly organized nervous system. The characteristic "buck knees" are all too commonly noticeable in the Thoroughbred, from the galloping yearling to the seasoned campaigner. Another objectionable feature frequently noticed in the breed is the tendency towards weediness, as it is termed, *i.e.* long legs and light body. The prevailing colors are bay, brown and chestnut, with one or more white markings. The most important modification in type during the development of the Thoroughbred is an increase in stature, which Sir Walter Gilbey estimates to have been one hand two and one-half inches from the year 1700 to the year 1900, the average height of the modern Thoroughbred being fifteen hands two and one-half inches. The average weight is about one thousand pounds.

130. Technical description. — A detailed description of the Thoroughbred follows: Weight, 900–1050; height, fifteen to sixteen hands; color, bay, brown or chestnut, with more or less white in the face or on limbs; a very "breedy" head, with sharply defined features, a straight face line, trim muzzle, large nostril, full, clear, prominent eye, broad forehead, neat ear and clean-cut throttle; neck long and rather straight, giving an extended carriage of the head; shoulders sloping

and well finished at the withers; strong back, loin and coupling, altogether making a short top-line compared to the length of the under-line, although having length sufficient to insure freedom of stride; a very deep fore-rib and chest, lung capacity being secured in this way rather than by thickness and fullness of chest; croup long and a bit straight; deep, full, muscular quarters and gaskins; clean, smooth joints; a broad, flat, bony leg of more quality than substance; oblique pasterns and a rather small foot of dense horn. A fine, smooth coat of hair with a total absence of any feather, and a soft, delicate skin with the superficial blood-vessels well marked, complete a general appearance of quality and refinement (Fig. 17).

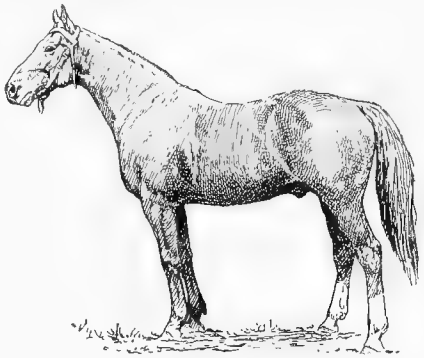


FIG. 17. — Thoroughbred stallion.

131. Use for sporting purposes. — There may be some question as to the propriety of claiming any real usefulness for a horse, the only purpose of which is to serve as an active factor in the sports and pastimes of the people. Be that as it may, no one can deny to the Thoroughbred full meed of praise for a most efficient service in his own peculiar field. The turf, originally an English institution, was early transplanted to other countries, and all peoples among whom flat-racing, steeple-chasing, hunting, and polo are in vogue, may be expected to testify to the usefulness of the Thoroughbred.

There is such diversity of opinion, even among authorities, as to the relative merits of the Thoroughbred and the American Saddle horse for saddle work, and the Thoroughbred and the part-bred horse as hunters, that the fairest way to treat them would be to review the evidence on both sides. By his opponents the Thoroughbred is objected to as a saddle horse because of his disproportionate height at the withers and croup, his unsymmetrical appearance from the saddle, his low "daisy cutting" way of going, which they assert is conducive to stumbling, and his erratic, nervous temperament, which renders him untractable under restraint. Opposed to these objectionable features are the spirit, the indomitable courage, speed, stamina and natural gallop which are possessed by no other horse in the same degree. Level-headed Thoroughbreds that fold their knees a little and do not drag their hocks are being strongly supported in the saddle division of eastern shows. For riding to hounds the Thoroughbred is said by some to be ill-adapted because of his temperament, which makes him fretful at checks and difficult to control with the field in full cry. Furthermore, the average Thoroughbred is not up to the weight imposed by many riders who care to indulge in this sport. On the



FIG. 18. — Thoroughbred saddle mare.

other hand, his supporters maintain that his speed, stamina, courage and nerve force may be relied on to bring one in safely when others fail. It is said that he does not get "doppy" at his fences, but will jump, as well as gallop, on his courage when fatigued, and that altogether his performance is more in keeping with the sport than that of his colder-blooded contemporary. A logical conclusion seems to be that the Thoroughbred horse is best adapted to a Thoroughbred rider (Fig. 18). As stated by one authority, "Thoroughbreds are horsemen's horses," and one who understands their disposition and eccentricities is not likely to be satisfied with any other kind of a mount; while, for those less accomplished in horsemanship, and satisfied with a more moderate ride, the horse which has his fire cooled to some extent by a dip of plebeian blood is more suitable.

132. Use for crossing. — To estimate properly the full utility value of this race, it is necessary to consider, in addition to the service which individuals of the breed have rendered in performance on the flat and cross country, the great influence of the blood in union with that of other stocks. Notwithstanding the fact that this horse has been the creation of generations of sportsmen, with speed performance the standard of selection, it is the potency of his blood when blended with common, native stocks which is of greatest value in the production of market horses for use outside the realm of sport. In all but the draft breeds the influence of the Thoroughbred may be demonstrated. In the heavy-harness division, the foundation blood lines of the recognized breeds are significant. The Hackney descends from Shales, a son of Blaze, Thoroughbred, out of a strong common mare of Norfolk. Thoroughbred sires have produced from native French mares the half-blood

horses from which the French coach has been evolved. They are still called Demi-sang (half-blood) in France. The German Coach horse has less of the Thoroughbred character and foundation, but even here "the trail of the blood" may be traced. The Yorkshire coach horse represents a Thoroughbred-Cleveland Bay cross. The representative light-harness horse is the American trotter, and the two individuals accredited with being the foundation sires are Imp. Messenger, Thoroughbred, and Justin Morgan, said to be of Thoroughbred extraction. The American Saddle Horse, as a breed, is descendant from Denmark, Thoroughbred, son of Imp. Hedgeford, and repeated infusions of Thoroughbred blood are still admitted. Furthermore, the ranks of the hunter, jumper and polo pony classes, not breeds, but market types, are chiefly filled by either full- or part-bred blood horses.

133. Part-bred horses. — In accordance with the idea that the term Thoroughbred implies that a horse is totally of the blood, the term part-bred has become a common means of designating a horse that is not altogether, but only partly, of the blood. It is even customary further to indicate the proportion of hot or Thoroughbred blood, by applying the terms two-parts or half-bred to the get of a Thoroughbred sire out of a common bred mare, and three-parts or three-quarters bred to the individual whose sire was a Thoroughbred, while his dam was two-parts bred, as above. In those sections of the country where Thoroughbred sires have been available, horses of this fractional breeding are common. As a matter of fact, horses produced in this way have such a wide field of usefulness as to keep them in steady demand; therefore this is a line of breeding that may be strongly commended to many farmers. While these horses are produced principally

as green hunter material (Fig. 19), the part-bred horse is a most versatile equine. It is questionable whether there is any type of horse that can fill more acceptably so many different vocations as he. While somewhat deficient in style and trotting speed, his substance and stamina make him a stout, all-day road horse. He can be easily schooled to the walk-trot-canter standard, while his greatest accomplishment is to take up one hundred and eighty to two hundred pounds' weight and gallop, safely, for long distances across country at considerable speed, doing all the jumping requisite to such a performance. It has been further demonstrated that the part-bred horse has a place on the farm.



FIG. 19. — Part-bred hunter.

134. Distribution. — The Thoroughbred has found its way into all countries where speed horses are popular. Other countries to follow the precedent of England in the establishment of the race course and the patronage of the Thoroughbred, were America, France, Germany, Australia, and Argentina, especially.

135. Organizations and records. — The first publication of recorded pedigrees and performances was in 1829. The official organ and record of the Thoroughbred in England is the General Stud-book of Great Britain. In this country, Thoroughbreds are registered in the American

Stud-book for Thoroughbreds, the official organization being the American Jockey Club.

Literature. — Sir Walter Gilbey, Bart., Thoroughbred and Other Ponies; Horses Past and Present; Ridgeway, The Origin and Influence of the Thoroughbred Horse, Cambridge (1905); Trevethan, The American Thoroughbred, New York (1905); Peer, Cross Country with Horse and Hound; Ware, First Hand Bits of Stable Lore; United States Department of Agriculture, Nineteenth Annual Report of the Bureau of Animal Industry.

American Saddle Horse. Plate IV. Fig. 20.

By *David Castleman*

136. The American Saddle horse, as its name indicates, is a saddle horse developed in America. While it is adapted first of all for saddle purposes, it has long since demonstrated its worth for light harness service. Its peculiar grace of motion and aptitude for the saddle gaits in their perfection, place it in the forefront of horses used for saddle work.

137. History. — The American Saddle horse is the outgrowth of necessity. Before railroads were established in this country, and while traffic was by horseback over unbroken or almost impassable roads, there was a demand for a sure-footed, sturdy horse that could travel long distances at a steady rate of speed, and at the same time carry a pack or a rider. Out of this need grew the American Saddle horse, very crude and undeveloped at first, but to be gradually molded, as necessity changed, into the magnificent type as he stands to-day.

Virginia and the south Atlantic states had given much attention to racing, and at a very early date were breeders

of the Thoroughbred. One source of importation was Canada. There they had raised a hardy little horse, said to be a cross of the French importations, generally with such stallions as could be secured from New York and New England. Incidentally, these stallions were most often of German and Netherland breeding. The Canadians had given much attention to the development of the pace or amble. Many of these Canadian horses drifted down into what were then the horse-breeding colonies. They had something of the gait and stamina required, but lacked in both beauty and courage. Some of these Canadian mares were crossed with available Thoroughbred stallions to produce a saddle horse, with most satisfactory results, certain lines of Thoroughbred blood giving the best product. The most satisfactory lines of the Thoroughbred blood were selected, and all others rejected.

Most of the horses brought to Kentucky by the early settlers were these " saddlers," and many of them the best that had been produced in the older states. The natural character of the Kentucky country led to the concentration of the best of these new saddle horses within her borders. The importance that attached to the efforts of the saddle-horse breeders in Kentucky led to the name " Kentucky saddle horse " being applied to these horses.

Imp. Hedgeford was a brown colt, foaled in England in 1825 by Filho-de-Puta, out of Miss Craigie by Orville. He was bred by a Mr. Mylton, imported in 1832 by William Jackson of New York, and taken to Kentucky, where he died in 1840. Among his get was the great Denmark, which was foaled in 1839, out of Betsey Harrison by Aratus, and bred by Samuel Davenport of Kentucky. He was a game and consistent four-mile race horse, but not remarkable for his speed. Denmark was bred to the Steven-

son mare 43, a brown saddle mare by Cockspur, the latter a saddler of one-half or three-fourths Thoroughbred blood. In 1850, Gaines' Denmark 61 was foaled, out of the Stevenson mare. He was the greatest of the sons of Denmark. He served through the Civil war, along with John Dillard, another famous saddler. Nine-tenths of the successful modern sires trace directly to Gaines' Denmark. Following the war there came a craze for speed horses, and many of the best saddle mares were stinted to trotting stallions, much to the detriment of the saddle horse.

In 1891, the American Saddle Horse Breeders' Association was organized. In its stud-book were inserted the names of the "foundation stock." In most of these foundation stallions there was a strong admixture of Thoroughbred blood, and many of them trace their lineage through Denmark's dam. In 1901, after ten years of careful work, the list of foundation stallions was revised to include the following ten horses: Denmark, John Dillard, Tom Hal, Cabell's Lexington, Coleman's Eureka, Van Meter's Waxy, Stump-the-dealer, Peter's Halcorn, Davy Crockett and Pat Cleburne.

138. Notable sires and dams. — John Dillard was by Canada Chief out of Lady Jackson, which was a daughter of Blackburn's Whip, which was by Imp. Whip, and he was by Imp. Saltram. Imp. Saltram got the Saltram mare, and she was the dam of Jenny Cockracy, which produced Betsey Harrison, the dam of Denmark; Jenny Cockracy also produced Susette, the dam of Berthune, the sire of Van Meter's Waxy, another of the foundation list. This illustrates the constant interweaving of the same Thoroughbred blood that characterized the early breeding efforts. The same intricate interrelationship could be traced for the other foundation stallions if space permitted.

Tom Hal was a Canadian pacer imported to Kentucky. He was a blue roan, foaled in 1802, and lived to the great age of forty-one years. He was the founder of the Hal family of Tennessee, of the Blue Bull family of Indiana and the noted Tom Hal saddle horses of Kentucky. Among many others, he was the sire of the noted horse Bald Stockings 76, which was the first horse ever noticed to go the running-walk. The dam of Cabell's Lexington was by Tom Hal. Here we catch genuine Morgan blood, for Cabell's Lexington was by Gist's Black Hawk, which was by Blood's Black Hawk, which was by Vermont Black Hawk. In Coleman's Eureka we again find Morgan blood on the sire's side and Thoroughbred blood on the dam's. He was a dark chestnut, sixteen hands high, and won about one hundred and twenty-five premiums in saddle and combined rings. Van Meter's Waxy was unquestionably a Thoroughbred horse. On the sire's side he traces to the two Barb horses sent to Thomas Jefferson by the Bey of Tunis. Stump-the-dealer was a Thoroughbred, tracing on the sire's side to Saltram and on the dam's side to Imp. Diomed. He was a famous race horse. The Halcorn strain is recognized as a separate and distinct saddle family. Peter's Halcorn, the head of the family, is described as a remarkably handsome bay stallion. Of the breeding of Davy Crockett we know nothing. He was imported to Kentucky from Canada and has been a great producer of saddle horses. He was characterized by power and endurance, and had large, yellow eyes which he frequently imparted to his get. Pat Cleburne is noteworthy for his production in the hands of Missouri breeders.

This list might be greatly extended by the addition of the noted horses of more recent years. Mention should be

made especially of the famous sires Black Squirrel 58, Montrose 106, Black Eagle 74, Chester Dare 10, Highland Denmark 730, Cecil Palmer 933, Bourbon Chief 976 and Dominor 2631.

139. Description. — The most outstanding characteristics of the American Saddle horse are courage, docility and superb finish (Fig. 20). His courage and spirit, coupled with his docility, give him his special usefulness on the battle field, as well as in the harness. Breeders of this horse have held before them an ideal type, and it is not too much to say that this ideal has been approached somewhat closely. The ideal American Saddle horse may be described thus: The muzzle is small and delicate, with distended and sensitive nostril. The head is bony, rather small, with generally just an indication of a dish in the face; the eyes full, round and prominent, and set wide apart. The small, pointed ears are set well apart, and are constantly played; sometimes there is a slight cup to the point of the ear. The horse should bear an expression of courage and gentleness. Behind the ears is the fine muscular throttle, on which the head is set at a good angle. The neck is long and gracefully crested. The shoulders are sloping. There is good depth through the heart, a short, strong back, the barrel



Fig. 20. — American saddle stallion.

ribbed well back and quite as large around the last rib as at the girth. The horse is strong across the kidneys and the coupling is powerful. The quarters are level, strongly muscled and long from the point of the hip to the hock. The tail comes out well up, is carried high, and is heavy, long and flowing. The body is set on comparatively short legs. The bone of the leg is broad, flat and closely knit, and the tendons strong. The fore-arm is powerfully muscled and the fore-legs straight. The hind-leg is not so straight as in the Thoroughbred, and is well muscled. The legs are short from knee and hock to ankle. The pasterns are a little long and sloping. The feet are hard but elastic, heels well spread and well developed. The average height of the Saddle horse is about fifteen hands two inches, and the weight approximately 1000 pounds.

140. The saddle horse in motion. — The methods of educating the saddle horse would carry us too far afield, but we may consider the motion of the educated horse. Beautiful as this horse is, he must be seen in motion to be appreciated.

141. The flat-footed walk should be prompt, brisk, elastic, " dead in line " and fast. Speed is important and should be equal to at least three and a half miles an hour. Horses will occasionally be found that will walk at the rate of four and a half miles an hour, but the lower estimate is good walking. It may generally be assumed that a horse is walking properly if all four shoes may be seen from behind him, and the feet on the same side are in line.

142. The trot should be true, " dead in line," well under the horse, balanced, prompt and with both shoulder and stifle put well into the motion. Unless the shoulder is put well into the motion, the mere play of knees yields a racking, uncomfortable ride. Unless the stifle is brought

into full play, the recovery is necessarily slow. This is not only a bad fault, but gives one an idea that the horse is going one gait in front, and another behind. To use a trade expression, " the horse is going in two pieces." For a comfortable ride, knee and hock action must be equal; and, given this equality, it cannot be too high. With all this, the ideal saddle horse must accomplish one more thing with his trot: he must trot with all four legs under him — the trot must be gathered; he must come up into the bit, and still not pull an ounce. The trot of the ordinary horse is straggly and too much extended. The men who best accomplish this " gathering " of the trot are the most successful educators.

143. The canter. — This gait, in its modern development, is a thing of beauty. The old " 'lope " or gallop, which seemed to ride one down hill, is relegated with the side swiping pace. The canter of to-day is high, bounding, elastic, gathered slow, and right under the horse. At this gait a horse's hocks should be right under him, and the motion should come almost entirely from the front, while the quarters are sparingly used. The horse should lead with either foot, and change lead at command with such ease that no signal can be detected. His quarters should be so thoroughly flexed that they are always turned toward the center of the circle in which he may be supposed to be cantering. That is, when the horse is leading with the right foot his quarters should be well under him, and in to the right. In other words, the horse's body should take the curve of the circle in which he is supposed to be cantering. This is the only possible way to get a comfortable and pleasing canter. At the same time, the rider should gently raise the horse, with an almost imperceptible pressure on the bit, at each upward bound. This is the canter

in contradistinction to the gallop, and the American saddle horse seems almost to do it naturally.

144. The slow gait may be any one of three, that is, (1) the running-walk; (2) the fox-trot; (3) the stepping-pace.

(1) *The running-walk.* — This is the intermediate development between the flat-footed walk and the rack. The motion, rhythm and recovery are identically the same. It is a " single-foot," just as are the flat-footed walk and the rack. But the tempo is greater than in the walk, and less than in the rack. It is much the most graceful of the slow gaits, and the easiest on both horse and rider. At this gait a horse can cover mile after mile, up and down hill, without distressing either himself or his rider. A speed of six to eight miles an hour is not unusual, and occasionally a " running-walker " is found that can do nine miles or better. Not all members of this breed can be taught to go the running-walk well, and for that reason it has been decreed that either the fox-trot or the stepping-pace may be accepted as a substitute.

(2) *The fox-trot.* — This may be best designated as a mongrel gait. It is not so graceful nor so easy as either the running-walk or the stepping-pace. At this gait, the horse goes a jog-trot in front and paces behind.

(3) *The stepping-pace* is nearly as graceful a gait as the running-walk, and when well done is quite as easy on the rider and only slightly harder on the horse. It is not the side-swiping pace of the harness horse. At this gait the horse is going the running-walk with his fore-feet and pacing with his hind-feet.

145. The rack. — This gait is the highest development of the flat-footed walk. It is nothing but the flat-footed walk developed to high speed. The rhythm and motion

are identical, and the old name of "single-foot" was an aptly descriptive term. The feet hit the ground in succession, one at a time. It is the flashiest and most attractive gait a horse can go, and while tiring to the horse, there is no gait more delightful to the rider.

146. Use as a cavalry horse. — In both the Civil and Spanish-American wars the American Saddle horse has been put to the test, and in both cases the testimony has been to his unsurpassed excellence as a cavalry horse. His endurance, combined with his smooth, fast walk, enable him to stand the hard strains with the minimum of fatigue to himself and his rider. He is reliable on the field and quick to adapt himself to the maneuvers.

147. Use as a commercial horse. — The same qualities that adapt the American Saddle horse for cavalry purposes make him valuable commercially wherever horses are kept under the saddle. His winnings in the show-ring attest his popularity. In the ten years, 1896–1905, at the national horse-show in Madison Square Garden, New York City, the American Saddle horse won twelve out of a total of eighteen championships open to all breeds of horses that wear the saddle. His show-ring winnings add to his commercial value. Within a recent year, the following sales were made: The Moor, a three-year-old stallion, was sold for $7500; Tattersall and Mate, a pair of geldings, sold for $6000; Eugenia and Magna, a pair of mares, brought $5000; American Girl, a four-year-old mare, sold for $5000. Prices up to $1000 for a single horse are not uncommon.

148. Use as a gaited horse. — The demand for gaited horses is met by members of this breed. Saddle horses of other breeds do the three natural gaits, the walk-trot and canter. The American Saddle horse is distinctive in that

he can be readily taught to go the five gaits, the walk, trot, canter, rack or single-foot, and the running-walk, fox-trot or slow pace. The gaits are largely a matter of training with any horse, but the American Saddle horse may be said to have an inherent tendency and aptitude to master the gaits more quickly and perfectly than horses of other breeds.

149. Use as a harness horse. — The American Saddle horse has also a place as a light harness horse, as is indicated by the following examples: Emily 855, World's Fair Champion at Chicago in 1893, has frequently gone a mile in 2:35 to 2:50. Hitched double with Dorothy 1210 (winner of seventy-two blue ribbons in succession), the pair have driven a mile in 2:52. Rex Arbuckle 1467, champion light harness horse at the Kentucky State Fair in 1906, has driven a mile many times in better than a "forty" gait. This same stallion has won prizes in many five-gaited rings. Among others, John Dillard F. S. should be mentioned as a notable sire of the dams of light harness racers.

150. Use as a hunter. — Many of these American Saddle horses have been educated as hunters. A notable example was Copeland 1153, whose name was changed to Pisgah. This horse won many ribbons in hunter rings.

151. Breeding. — But little can be said on this subject that is not applicable to all pure-bred stock. The one endeavor since the foundation of the type has been to produce a horse fitted in conformation and motion and intelligence for a definite purpose; to breed a beautiful horse, with as nearly perfect motion as possible. To this end, breeders have bent their energies in using the process of selection and rejection. Out of the years that have passed, certain lessons have been learned. The remark-

able prepotency of the blood of Gaines' Denmark 61, in the male line, has been conclusively demonstrated. He is a reckless man who undertakes to produce the modern American Saddle horse, with a stallion heading his stud which lacks the direct male trace to this greatest of the Denmarks. Fortunately, his blood has been so diffused that there is no danger of inbreeding. The years have also demonstrated that certain lines of blood have produced great brood-mare families. The daughters of Peavine 85, Dave Akin 775, Harrison Chief 1606, Indian Chief 1718, and that exquisite son of Magic, Beauty 604, have produced very successfully when mated to stallions possessing a direct male lineage to Gaines' Denmark 61. Not yet has the Chief family produced an acceptable sire.

The general rules followed in the production of the present-day American Saddle horse may be stated thus: (1) Have the stallion trace directly to Gaines' Denmark 61. (2) Have in the brood-mares as many crosses as possible of the proved great brood-mare sires. (3) Line-breed to the proved great brood-mares of the breed, and remember that of these, Nannie Garrett 472 stands easily first.

It seems hardly necessary to add that the question of individuality is even more pertinent here than in other breeds. No horse of this breed can carry such superior blood lines as to warrant overlooking inferior individuality. The ideal must be definite and must be adhered to.

152. Feeding. — It has been learned from the breeders of Thoroughbreds that the essential growth of a horse is mainly in the first year of his life. Hence, we antedate his birth and keep his dam in prime condition. For twenty-four hours after his birth, the dam has no food, but a bucket of water with the chill taken off is kept constantly before her. At the expiration of the twenty-four hours,

the attendant should begin to feed both foal and dam. By the time the foal is seven days old, he and his dam are on full feed. When it is available, this feed consists of one-third wheat bran and two-thirds rolled oats. This, with either timothy or Burt oats hay, makes a well-balanced ration for mare and foal. This feed is placed in a trough low enough for the foal to reach and eat with his dam. By the time he is three days old, he will have learned to eat, and then he must be fed regularly. Whatever food is available for the mare and foal, it should contain a liberal proportion of protein.

It may be admissible for the writer here to give a warning, even though it may seem to be unnecessary. Both alfalfa and clover are dangerous if fed to breeding animals. This statement is made out of personal experience in breeding this horse. There is no better roughage for growing horses than clover hay. Alfalfa hay will do for horses if clover is not available, but its strong diuretic effect makes it necessary to watch it carefully.

153. Distribution. — The state of Kentucky justly claims to have been the nursery of the two American breeds of horses, — the American Saddle horse and the Standardbred trotter, although Tennessee, and more recently Missouri and Illinois, have been very instrumental in the development of the Saddle horse. The Saddle horse has become distributed over most of the United States and parts of Canada. There are at least two very creditable studs in Canada and one in Mexico. Seven stallions have been sent to South America, two stallions to Porto Rico, five stallions to Cuba, one stallion to Hawaii, one to New Zealand and five to Japan. Three mares have been sent to England. It is probable that representatives of this breed have also reached other countries.

154. Organizations and records. — The organization devoted to the interests of this breed is the American Saddle Horse Breeders' Association, with headquarters at Louisville, Kentucky. When this organization was first effected, in 1891, it had the name National Saddle Horse Breeders' Association. The change was made to the present name in 1899. The association has published six volumes of its register, each volume containing 3000 registrations.

Arab Horse. Fig. 21.

By *Homer Davenport*

155. The Arab horse is notable as a saddler, and to impart vigor, quality and intelligence in cross-breeding. His blood has been prominent in the development of the Percheron, Hackney, Thoroughbred, Russian Orloff, Trakehner, Hanoverian, French and German cavalry, coach horses and polo ponies; in fact, a large proportion of our present-day types are more or less traceable to the influence of the Arabian horse.

156. Early history. — There has been a great deal of query as to where the Arab horse came from. It seems probable that he came originally from Mesopotamia, although some writers hold that his native home was in the vicinity of Nejd. According to Plumb, the Arabs are descendants of Ishmael, who according to tradition, inherited a valuable horse of the Kuhl race. The Anazeh tribe descended in a direct line from Ishmael, through Sheik Salaman, who lived about 1635 B.C. (four generations removed from Ishmael), and who owned five famous mares. From this ancestry has come the purest and best Arab horse blood. This race was in existence many

centuries before the time of Mohammed. Early in the seventeenth century, Arab horses were brought to England, and in the eighteenth century the importations were numerous. These exerted considerable influence on the development of the Thoroughbred and the Hackney.

157. History in America. — The first record we have of the Arab in America was the importation of the stallion Ranger, about 1765, to New London, Connecticut. In 1838, J. D. Elliott imported a number of both sexes. The late A. Keene Richards brought them to Georgetown, Kentucky, in 1856. His plant was making the most rapid strides toward success, when it was destroyed by the Civil War. The blood of his horses, however, is found in the present Kentucky saddle horses, six and seven generations back, and there is little doubt that much of the beauty of that splendid animal to-day is traceable to the horses that A. Keene Richards imported. The next importation was the two stallions given to General U. S. Grant by the Sultan of Turkey. These were of unknown families, but they sired many beautiful and useful horses.

A number of Arabian horses were brought to the World's Columbian Exposition at Chicago, in 1893. The Sultan was induced to permit these horses to come to America for the exhibit, and through mortgages they were eventually held. Nine were burned to death in their stalls at the Exposition by the Syrians that brought them, as the outcome of a wrangle. From these horses, however, came the best results from any Arab horses brought to America. Most of them were bought by Peter B. Bradley, of Hingham, Massachusetts, who crossed them on some of our best breeds, besides breeding them in their purity. With a pure horse of his breeding, Mr. Hess, of New York City, won the only blue ribbon ever won over our own

types of saddle horses, with an Arab in open competition. Bradley also bred a trotter, two removes from Arab blood, that trotted to a record of 2 : 30 in the sixth heat of his first race. He produced the finest types of polo ponies and accomplished much with the Arab blood.

158. Description. — The Arabian in his purity is a horse of high courage, possessing length, strength, power and substance, combined with elastic and graceful movement. He is gentle and affectionate. He seems to have no fear of anything, even man, a trait shown particularly in young colts. In his native country he stands closer to fourteen hands and two inches than any other height; but his size is merely a matter of the feed given him when he is a colt, as is shown by the fact that among the Gomussa tribe of the Sabba Anazeh, who pay better attention to their horses than do others, we find colts at two years old standing fifteen hands high; and at the Circassian villages up the Euphrates, where even better care of the live-stock is taken than by any of the Bedouins, we find the Arab horse much advanced in size.

There is a peculiar balance and harmony throughout the frame of the Arab. The beauty of head, ears, eyes, jaws, mouth and nostrils is noteworthy. The ears are not small, but are so shaped that they appear small; the head is short from the eye to the muzzle, broad and well-developed above; the eye is soft and intelligent; the nostrils are long and appear puckered, drawn back up the face, and are capable of great distention; the neck is a model of strength and grandeur, of which he can make a perfect arch, that matches the arch of his tail. The throat is large and well-developed; it is loose and pliant when at rest, and much detached from the rest of the neck. This feature is not often noticed, but it is indicative not only of

good wind, but of the capacity for prolonged exertion without distress, owing to the great width between the jaws. The shoulder is good, as is the deep chest, the appearance of which is diminished by the big, deep ribs; the back is short, the loins of immense power, and the quarters long and strong, the whole beautifully turned. The legs and feet are superior. The two great features, possibly, that

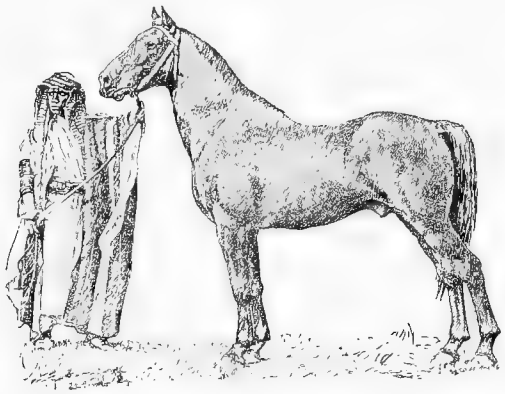


FIG. 21. — Arab stallion.

a stranger would notice first in the Arab horse, are the forehead, or jibbah, which cannot be too prominent, giving a peculiar dish to the lower part of the face, and the tail, set high and carried in an arch. The form of the Arabian horse is essentially one of utility; the space for the seat for the rider is sufficient, and at once fixes his true position; the weight is therefore carried on that part most adapted for it. The rest of the frame is taken up with the powers of progression. The color varies, and may be white, gray, bay, chestnut, brown and rarely black. Roan, spotted or piebald and yellow colors are not found among the

Arabs, although roan and yellow are common among Barbs. The bays often have black points, and generally one or more white feet, with some white in the face. The chestnuts vary from the brightest to the dullest shades (Fig. 21).

159. Types and families. — It has been asserted that there were two breeds of Arabian horses, a large breed and a small breed. This is untrue; there is but one general breed of Arabian horses, of which there are many families, which are different and distinct in many ways. While there are not two distinct breeds, there are a first and a second class. A horse, or mare, about whose breeding there is the slightest doubt, is disqualified, and not called "chubby," and therefore is of the second class. The families originated and descended from some great mare. In all cases the breed of the colt is that of the dam, and not of the sire; thus, a colt, whose father had been a Hamdani Simri, and whose dam had been a Seglawieh Jedranieh, would necessarily be a Seglawi Jedran. The Bedouins count the father little, so long as he is "chubby," meaning a pure-bred that the Anazeh would breed from, but they place everything in the value of the mother's blood, and of her own individuality.

The Gomussa, of the Sabba Anazeh, are the shrewdest horse-breeders of the desert. They have retained, in the largest numbers, specimens of the five great families, which are called the Khamseh, which means five. They also have the choicest of the other families, which are rated equal in point of blood. The Khamseh, so the story runs, have descended from the five great mares, which, with other mares of Sheik Salaman, were drinking at the river after long hardships in war, when the trumpet blew, calling them back to battle. Only five responded to the

call, and it was those five that founded the five great families.

160. The Keheilan Ajus. — This strain is the most numerous, and from it all other Keheilans are offshoots. The words Kheleilan Ajus mean the mare of the old woman, derived from a legend that the mare was dropped by its dam near a well kept by an old woman, where the rider had stopped. The traveler rode off in a short time, leaving the filly colt with the old woman. The next morning the colt was found by its mother's side, having traced her across the desert during the night. Among the Keheilans, bays are more numerous than any other color. They are the fastest, although not the hardiest horses nor the most beautiful. They bear a closer resemblance to the English Thoroughbred than any others, as they are more nearly related. The Darley Arabian, perhaps the only thoroughbred Anazeh horse in our stud-books, was a Keheilan of the sub-family called Ras-el-Fadawi.

161. The Seglawi family have descended from four great mares owned by a man of that name. At his death he gave his favorite mare to his brother Jedran, and thus the Seglawi Jedrans are the favorites of the Seglawies; he gave the second mare to his brother Obeyran; the third to Arjebi; and the fourth to El-Abd, meaning the slave. The Seglawi Arjebi are extinct, and of the remaining strains, the Seglawi Jedran ranks first in the esteem of the Bedouins, and Seglawi El-Abd second. Some years ago, Abbas Pasha, of Egypt, purchased nearly all of the Seglawi Jedran mares from the Anazeh tribe, paying as high a price, it is said, as 3000 pounds for a single old mare. Many chestnut-colored horses are found among the Seglawis; possibly, with the bays, they would form about an equal division.

162. Hamdani. — The Hamdanis are not common anywhere on the Syrian desert, the Shammar being supposed to have the best. They are mostly grays, although very handsome browns and chestnuts are to be found in the Shammar. The only strain of the Hamdani that is counted " chubby " is the Hamdani Simri. Mares of the Hamdani Simri are very rare.

163. Abeyan. — The Abeyan is generally the handsomest breed, but it is small and has less resemblance to the English Thoroughbred than any of the other families of the Arabian horse. The Abeyan Sherrack is the most esteemed of the seven strains of the Abeyan (and there are but two others of that seven, the Abeyan Zahaine and Abeyan Fadaha, that are counted " chubby "). It is the name of the family, and the other strains are derived from Abeyan Sherrack. Abeyan Sherracks carry their tail much higher than other Arabian horses. They are also noted for their prominent forehead or jibbah. Their endurance is remarkable. The colors are bay, chestnut and gray.

164. Hadban. — There are five strains of the Hadban family, Hadban Enzekhi being the favorite, and Hadban al-Fert being the only other that is considered " chubby " by the Anazeh. The Gomussa of the Sabba Anazeh are supposed to have the best Hadbans at the present time. Brown and dark bay are the favorite colors of the Hadban Enzekhi family.

165. Other families. — Besides these five families, there are sixteen other families that are esteemed almost as much as the Khamseh: (1) The Maneghi, supposed to be an offshoot of the Keheilan Ajus. They are plain and without distinction, being somewhat coarse, with long necks, powerful shoulders, much length, and strong but

coarse hindquarters. They are strong boned, and are held in high repute as war horses. There are four sub-families in this group, the favorite being Maneghi Sbeyel, which is counted "chubby" all over the desert. Maneghi Hedruj, the next esteemed, is not counted "chubby" at Nejd, but is by some tribes of the northern desert. The family of Sbeyel of the Gomussa possesses the finest specimens of the strain known by that name. (2) Saadan, often very beautiful horses; the sub-strain, Saadan Togan, is the most highly esteemed. (3) Dakhman. (4) Shueyman. The sub-strain of Shueyman Sbah are rated as first-class. (5) Jilfan. Of this there is a sub-strain, Jilfan Stam el Bulad, meaning the sinews of steel. In some parts of the desert, the Jilfan Stam el Bulad is prized equally with Hamdani Simri. (6) Toessan. Of this there is the sub-strain Toessan Algami. (7) Samhan, with a sub-strain, Samhan el Gomeaa. The horses of this family are frequently very tall, and are much esteemed. (8) Wadnan, with the sub-strain, Wadna Hursan. (9) Rishan, with the sub-strain Rishan Sherabi. (10) Tamri. The Keheilan Tamris are highly prized. (11) Melekhan. (12) Jereyban. (13) Jeytani. (14) Ferejan. (15) Treyfi. (16) Rabdan. Besides these, there are the Keheilan Heife, Keheilan Kroash, Keheilan el-Ghazala, Keheilan al-Denais, Keheilan al-Nowak, Keheilan al-Muson, Keheilan abu junub, Keheilan Rodan, Keheilan Wadman Harsan, Dahman abu Amr, Dahman Shawan, Dahnam Khomais, Abu Arkab, all of which are considered "chubby." All these are Keheilans, and most, or all of them, have descended from Keheilan Ajus.

166. Use for riding and driving. — As a saddle horse the Arab horse ranks high. He has always been accustomed to the saddle, and has developed remarkable en-

durance, carrying riders long journeys, day after day, in a scorching sun, with little feed or water. He can carry very heavy weights on his back. When hitched to the carriage, he makes a gentle, attractive driving horse.

167. Use for crossing. — The importance of the Arab for cross-breeding purposes is well known. He has entered into the development of many of our present-day breeds, — trotting, running, saddle, coach and draft, — and has imparted his endurance, quality and intelligence wherever used. That he is still valued for this purpose is evidenced by the fact that in certain European countries Arab studs are officially maintained for breeding purposes. One of the most noticeable differences between our best types of to-day, especially in America, and the Arab horse, is the flat and contracted sides of our horses compared with the round, barrel-shaped ribs of the Arabian and the narrow openings of the jaw-bones of our horses compared with the wide openings of the jaw-bones of the Arab horse. Another very noticeable difference is the dropping off below the knee of our American horses compared with the big, flat bone below the knee of the Arab horse.

The finer quality of bone that is transmitted by the Arab horse in crossing is one of his greatest values. Beyond this, perhaps, is his ability to stamp evenness and beauty of disposition on his offspring, a quality desired in all horses, especially in cavalry horses. The very close relation that has long existed between the Arab horse and his master, has produced in him a docility and intelligence that is seldom found in horses of other breeds. The prepotency of the Arab is due to the fact that in his veins flows only pure blood, with no admixture of cold blood, a fact that cannot be said of any other breed.

168. Feeding and care. — Unaccustomed to much feed, or regular feed, the Arab is likely to get very fat under our method of feeding, so that the horse, once the picture of all that is beautiful and graceful, with us may soon become a fat horse. He thrives best on half of what other horses require. Of all horses, the Arabian is least fit to stand idle in his stall. His life for centuries has been under the saddle, as a war horse, on the scantest rations any horse lives on; and to pen him up in a close stall and feed him three meals a day so completely changes his life, that it changes his form.

169. Distribution. — The home of the Arab horse, speaking of the pure Arab, is the district that is covered by the Nomad Arabs, and is confined to Arabia proper and the Syrian desert. In its greatest perfection it is found among the Anazeh and Shamar Bedouins, occupying the territory east and west along the Euphrates river; the Shamar on the eastern shore and the Anazeh west of the river. The latter make a circuit of the desert annually, going from the summer pastures near Aleppo, in the north, to Nejd, in the south, in winter. They swing east past Bagdad and Deyr on their way north, and on their journey south, go west, brushing near Palmyra and Damascus. Within that circuit the home of the Arabian horse may be said to lie. The haunts of the pure Arabian are those of the desert Bedouins, who still carry the lance. Of course, specimens of pure blood can be found sometimes at Beyrout, and the coast towns, but such horses have been brought there by wealthy citizens. In like manner they have been carried into northern Africa, Persia, Turkey, Hungary, Germany, France, Russia, England and America.

The adaptability of the Arab is noteworthy. Accustomed naturally to the most intense heat, yet he thrives

in the extreme cold, and the writer has known one to winter perfectly in the mountains of Pennsylvania. His coat, while fine and silky in spring and summer, in winter is as thick as a beaver's and has an undercoating of fur-like hair.

170. Organizations and records. — The Arab Horse Club is promoting the interests of the Arab horse and registering both pure-breds and colts from Arab sires but out of mares of other breeding. Arabian horses are now eligible for registration in the American Stud-book and in the General Stud-book of Great Britain.

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Barb and Turk Horses

By *Carl W. Gay*

171. The Barb horse takes his name from his native habitat, the so-called Barbary states of nothern Africa, originally peopled by the Berber tribes. These states are Morocco, Algeria, Tunis and Tripoli. The Barb is the "Horse of the Sahara," of Daumas, the "North African" or "Libyan" horse of Ridgeway. The oriental group is composed of the Barb, the Turk and the Arabian, although most recent investigations indicate the Barb to have been the real source of all oriental blood. A common error resulting in much confusion is the use of the term Arabian in a sense synonymous with oriental.

172. History in Egypt. — History first records the horse under domestication in Egypt, and it is thought that his

general distribution throughout the civilized world, which took place largely through the agency of the conquests of nations, was made from this center. Such an indefinite beginning is given a more satisfactory explanation by the modern researches reported by Ridgeway, which he maintains are strongly suggestive that the Egyptians secured their horses from Libya, where they are thought to have been indigenous. This hypothesis has a striking significance in view of the fact that the Libyan horse of Ridgeway is identical with the subject of this discussion.

Zoölogically, there have been demonstrated three distinct species of horses in the genus Equus besides the various species of asses, zebras and the extinct quagga. To these, Ridgeway adds *Equus caballus libycus*, held by him to be a distinct species or at least a sub-species. This being the case, we are justified in accepting the Barb as the progenitor of all modern light breeds, the Turk and Arabian being derivatives, and not antecedents of the Barb. It is known that horses existed in Egypt 1500 years before they were in Arabia, a fact that is contrary to the popular belief that the genesis of all good horses was in Arabia. It establishes the Barb as the real origin of the Thoroughbred, the blood influence of which is recognized in all horse-breeding countries. Furthermore, in view of the fact that the Andalusian horse of Spain traces its ancestry across the Mediterranean, the Barb becomes an important factor in the horse population of America.

173. History in America. — The most notable oriental horses brought to America are Grand Bashaw, a Barb from Tripoli, whose immediate descendants founded the Clay, Patchen and Bashaw families; Zilcaadi, an Arabian from Turkey, and sire of the dam of Gold Dust; and Leopard, an Arab, and Linden Tree, a Barb, presented to General

Grant and used by Randolph Huntington in his creation of the Clay Arabian. Most important of recent importations are those of Homer Davenport, the most conspicuous individual of which is Haleb (Fig. 21).

174 Description. — The Barb is fourteen to fifteen hands in height, short of body in proportion to length of limb, his whole form being conducive to speed. The head is beautifully proportioned, with a neat ear, broad, full forehead, large, clear, prominent eye, flashing fire and yet expressing intelligence, a deep jowl with open angle, a trim muzzle and a nostril thin at the margin, capable of great dilation and continually in play. The head is nicely set on a rather long, high-crested neck, well cut-out in the throttle and giving the head a lofty carriage; shoulders well laid-in and sloping, well set-up at the withers; deep, well-arched rib; somewhat drooping croup, although the tail is carried high; straight hind-leg, long pasterns and rather deep, narrow feet of the most superior texture of horn.

The prevailing colors in Barbary are dark bay, brown, chestnut, black and gray. Ridgeway concurs with other authors in his conclusions that bay with some white markings, as a star or a blaze, together with white coronets, was the original color of the pure Barb. He reasons that the rigid course of selection which modern, scientific breeding has established for the improvement of the race is, incidentally, gradually eliminating all but bays and allied browns and chestnuts, and indicates the final exclusion of all but the bays. Statistics regarding the winners of the principal racing events bear out this conclusion. Thus, as the "blood tells," the bay color predominates.

175. Use of the Barb. — Some idea of the extent to which the oriental blood has proved a potent factor in the

foundation or improvement of modern breeds may be had from a review of the origin of some of them. The term oriental is used in this connection for the reason that earlier writers were not specific in their references to Barbs, Turks or Arabians. The Darley Arabian, Byerly Turk and Godolphin Barb, with the "Barb mares," have been called the real foundation of the Thoroughbred. The Percheron owes his origin to the mating of oriental horses, left by the Saracens or brought back by the Crusaders, with native French mares of the Flemish blood. Subsequently, there were made at intervals systematic top crosses of blood from the Orient. Gallipoli and Godolphin were two of the most important of these, and the former is regarded as the most influential sire in the history of the breed. The prototype of the Hackney, the Norfolk trotter, was the result of a Barb union with the Black trotter of Friesland. The Cleveland Bay was the product of a Barb-Yorkshire cart horse cross. The hot blood of the desert is mentioned in connection with the origin of the German coach horse. Bars 1st, progenitor of the Russian Orloff trotter, was three generations removed from Smetanka, a gray Arabian taken into Russia. The Prussian Trakehner is derived from an admixture of oriental and Thoroughbred blood with the native stock.

176. Importance of the Barb. — The importance of the Barb is a matter of history, although it is only recently that there has been available much reliable data concerning him. Much of the early literature has been more or less obscured in mythology and superstition.

A study of the origin of each of the breeds of horses shows that there were two original sources from which the foundation blood of each breed was drawn. These were the Wild Black horse of Flanders, thought to have

been indigenous to central Europe from the Rhine river to the Black sea, and characterized by his great scale, grossness, slow awkward movement, sluggish lymphatic temperament, black color and extreme development of hair; and the oriental horse, native to the desert regions of northern Africa, Turkey, Asia Minor, Persia and Arabia, the most notable characteristics of which were extreme refinement and breediness, beauty of form, spirit and intelligence, speed, stamina and grace of movement, and an active nervous temperament. The breeds of the heavier, draftier type show a preponderance of the characters of the former, while those of the lighter, speed type resemble more closely the latter. The so-called coach breeds represent a more or less proportionate blending of the two.

177. Organizations and records. — Barbs are registered in the Algerian Stud-book, a book of record formerly recognized by the United States Department of Agriculture. It is said that the number of English and French horses in Algeria has led to the Barb being more extensively crossed with this blood than in Morocco, where there are fewer foreign horses, and systematic efforts have been made under the direction of the Sultan to keep the blood pure. Some Barbs are also registered with Arabians in the General Stud-book of Great Britain.

178. The Turk horse. — This horse, named with the Barb and the Arabian as constituting the so-called oriental group, has much less significance than either of his contemporaries. Sanders suggests that the horses of Arabia and Persia were originally derived from Turkey. In the light of recent investigations we are led to conclude that the term Turk does not imply any particular stock, but designates merely the horses of Turkey. These have been of

a different character at different periods. The originals, called Turcoman, were probably offshoots from the pony types native to the mountainous districts of southern Asia. They were first reported in Turkestan, but became generally distributed later in Turkish Asia and Persia; there are few horses in Turkey in Europe. These original ponies do not represent the Turk as he is referred to in recent times, however. Their type has been so completely modified by the Arabians with which they have been crossed as to leave little evidence of their former characteristics. However, plain heads with Roman noses, ewe necks, light middles and long legs are still noticeable, and are charged to the Turcoman foundation. These modified Turkish horses are of fair size, bay, black or gray in color, with uniform white markings. In those parts of Turkey nearest the Arabian border, many pure Arabians are found. Captain Hayes reports that the horses in ordinary use in Turkish towns at the present time are small, hardy animals, gray or bay in color, and are produced by Arabian stallions out of Kurdistan pony mares, the latter being similar to the Turcoman ponies already referred to, and typical of the horses indigenous to Turkey. Probably the best Turks, so-called, were not Turks at all, but Arabians or Barbs.

Literature. — E. Daumas, The Horses of the Sahara, London (1863).

Hunter Horse. Fig. 22.

By *W. C. Bacon*

179. The Hunter, as bred in America, cannot yet be called a breed of horses. The Irish Hunter, however, has been recognized as a distinct breed for a hundred years or

more. The Hunter has been developed in Ireland as the result of a demand for horses with Thoroughbred or saddle conformation, that were able to carry much more weight than the pure-bred Thoroughbred. Ireland, therefore, may be said to be the home of the Hunter, or where this type of horse has been bred for so many years that it has long since been classed as a distinct breed, and recognized as such at all the fairs and horse-shows in Great Britain.

180. History. — The breeding of Hunters in America has hardly progressed far enough in any one section of the country to distinguish such animals as "pure-bred." However, a great many animals are yearly bred in this country for the special purpose of producing Hunters. The method of breeding is the same as originally adopted in Ireland, namely, the use of Thoroughbred stallions on native or grade mares. The breeders of Hunters are usually able to produce, even in the first cross, saddle conformation, and at the same time to have transmitted to such a cross sufficient of the courage, intelligence and staying qualities of the Thoroughbred to make the first cross (half-blood) a most satisfactory animal for cross-country riding to hounds. The fact that those half-, three-quarter- and seven-eighth-blood horses make such satisfactory Hunters is probably the reason why, in this country, there has been no general movement in any one section to continue special breeding. However, a great many clean-bred horses are favored by many persons for cross-country work. This special line of breeding has not been followed long enough for the breed to become fixed. In fact, the demand for such horses has always exceeded the supply in America to such an extent that the type has never had an opportunity to become thoroughly established. Nevertheless, there has been a National Steeple Chase and Hunt Association organized

in America under the auspices of the Jockey Club, that admits to register almost any animal with one or more crosses of Thoroughbred blood, that has been regularly "hunted" a certain number of times, with some recognized pack of hounds, and approved by the master.

Hunter-breeding in America is conducted to a limited extent in the neighborhood of most of the organized hunt clubs, of which there are some fifty in the eastern states. In such sections one will find one to half a dozen Thoroughbred stallions in general use among the farmers of that special community. In the Genesee valley in Livingston county, New York, for example, there are no less than eight Thoroughbred stallions within a radius of fifteen miles, being used on the farm mares of the neighborhood for the special purpose of breeding Hunters. Virginia probably produces more animals that are especially bred for hunting than any other state. Of late years, however, the Jockey Club has put out many Thoroughbred stallions throughout the state of New York. Hitherto, Canada has been one of the principal sources from which American hunting men have been supplied. The Canadian Hunters come largely from between Toronto and London, Ontario, where Thoroughbred stallions have been very generally used.

181. Description. — The Hunter should not be high-headed, and the longer the rein the better. The fore-hand should be light. The withers should be higher than the croup, and the bones of the fore-limb comparatively long, so as to be able efficiently to raise the fore-hand both in taking and landing. The shoulders and pasterns should be long and sloping. The muscles that lie above the fore-arm should be well developed, as the fore-arm straightens the shoulder joint and the latter straightens the elbow

joint, two actions which help to prevent the horse falling when he lands over a jump. The muscles over the loins behind the saddle should be particularly strong. The hocks should be large and gaskins broad.

The following is a detailed description of the points of an ideal Hunter: *Head.* — Ears fine, not too large, approaching each other at the tips, when thrown forward; cranium broad and nicely rounded; forehead flat and broad; eyes wide apart, prominent and bold in expression; nasal bones straight in front, but slightly dished on lateral surfaces; nostrils firm, large and flexible, of large capacity when the animal is excited; lips firm, mouth medium-sized; muzzle small and tapering; cheeks well but not too heavily clothed with hard, well-developed muscles; branches of lower jaw well spread apart at their angles. *Neck.* — Clean-cut and rangy; crest well developed and whipcordy, but not so heavy as in other classes; head well attached to neck in a graceful, angular manner; jugular gutter well developed. *Withers.* — Well developed, high, and not too wide on top. The withers should be sloping and of such form that the saddle may be placed well back over the center of gravity, which is especially desirable in negotiating timber. *Shoulders.* — Long and oblique, so as to give easy action; shoulder-blades well covered with muscles. *Chest.* — Deep, giving good girths, with a well-filled breast. *Arm.* — Thrown well forward, so as to give an oblique shoulder. *Forearm.* — Long, well developed and strong, well clothed with hard, well-developed muscles, having grooves of demarcation between them, showing the outlines of each individual muscle. *Knee.* — Clean, straight, large and strong in all directions, the bone forming the back part being somewhat prominent. *Knee to fetlock joint.* — Cannon short, broad, flat and clean; tendons standing

out plainly, hard and whipcordy. The lines of demarcation between tendon and ligament, and between ligament and bone, must be well supported beneath the knee, not showing any tendency to weakness. *Fetlocks.* — Strong and well supported. *Front pastern.* — Strong, medium length and oblique. *Front feet.* — Rather smaller in proportion than in horses of other breeding, round, strong and fairly deep wall; soles concave, frog well developed; heels full and not too deep; toes turning neither in nor out while standing. *Body.* — Back strong and inclined to be short, with a long under-line; loin broad and well muscled; ribs well sprung and of good depth. The under-line must be long, otherwise the horse will be shortened in his gait. To get this long under-line, perhaps a longer back will be required than would otherwise be desirable. *Croup.* — Well muscled, carried out straight to tail, which should be full haired and very stylishly carried. *Hock.* — Deep and strong in all directions; all points well developed, but not rough; absence of malformations or puffiness; point very well developed, straight on posterior border; the whole joint clean, hard and of an angular shape. *Hock to fetlock.* — Cannon short, wider and flatter than in front; tendons well marked individually, and must not have a pinched appearance below joint in front, but very gradually taper in width from hock to fetlock. *Fetlock joint.* — Large, clean-cut and strong. *Hind pasterns.* — Medium length, sloping and strong. *Hind-feet.* — Smaller and not so round as the front ones; sole more concave; frog well developed; heel good width and not too deep. *Color.* — Bay, brown, chestnut, black, roan and gray; with reasonable modifications. *Skin and hair.* — Skin soft, mellow and loose, hair fine, silky and straight. *Temperament.* — Mild, energetic, not vicious nor too nervous. *Action.* — Prompt,

free and elastic, not too much knee and hock action, but going close to the ground, especially in the canter and gallop; no paddle or roll, and feet not to go close enough to interfere; a good straightaway walker. *Weight.* — 1000 to 1300 pounds. *Height.* — 15 hands 1 inch to 16 hands and over (Fig. 22).

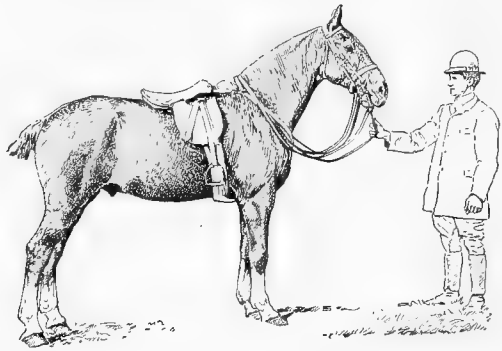


FIG. 22. — Heavy-weight Hunter.

182. Classes. — At the leading horse-shows there are several classes for Hunters of different types and different weight-carrying abilities. *Qualified* Hunters are those that have been registered with the National Steeple Chase and Hunt Association, but need not be clean bred. *Heavy-weight* Hunters must carry up to 200 pounds to hounds (qualified and not qualified). *Middle-weight* Hunters must carry up to 180 pounds to hounds (qualified and not qualified). *Light-weight* Hunters must carry up to 165 pounds to hounds (qualified and not qualified). *Thoroughbred* Hunters must be registered in the stud-book.

183. Uses. — The Hunter should not have more than three or four days of all-day fox-hunting in a fortnight; with drags, some may go three times a week, but much

depends on the going and the length of the runs. The Hunter should be jogged home after the hunt, given warm gruel and thoroughly rubbed. A groom should exercise him gently on non-hunting days for about five miles early in the morning. He should be carefully looked after and given the best of oats and hay. The night before he is to be "hunted," water should be kept in his stall all night, so that he may take it at will. He should be fed very early and saddled only just before he is ordered.

184. Steeple-chasers. — The Steeple-chaser is almost always a clean-bred horse, that has natural or made adaptability to jump. He must be more seasoned than the Thoroughbred that is to run on the flat, and must be up to a good deal more weight. There are certain blood lines that have produced natural jumpers, which, when "nicked" with certain mares, have produced fencers. Many horses that, perhaps, have not enough speed for the flat, have been schooled and made good chasers. Unlike the steady fox-hunting Hunter, the Steeple-chaser must be able to go a good pace and take his fences flying, or almost as fast as in a hurdle race. In this type of horse, the adaptability for the special performance and the result gives the horse his place and name as a Steeple-chaser.

185. Distribution. — As hunting has long occupied a place in the sports of nations, horses that may be characterized as Hunters are widely distributed. From Ireland, the home of the breed, the Hunter has been scattered over Great Britain and the continent. In 1904, the Dutch government bought 350 young mares of this breed in Ireland. In America, both Canada and the United States are devoting increasing attention to the production of horses for hunting purposes.

186. Organizations and records. — In Great Britain, the interests of the breed are in the hands of the Hunter Improvement Society of Great Britain. Two volumes of the Hunter Stud-book have been published and a third is in preparation. The pedigree qualifications of the Hunter Stud-book are that the stallions shall be by a Thoroughbred or registered Hunter sire out of a fully registered mare, and the mares shall show two crosses of Thoroughbred or registered Hunter blood, viz., sire and dam's sire, or if dams of winners of races under rules, and accepted after inspection. The supplement of the stud-book is open to mares (1) by a Thoroughbred or registered Hunter sire, winners or dams of winners of prizes or medals at national, county or associated shows, or (2) by inspection and veterinary examination. In America, the Jockey Club, with headquarters in New York City, was instrumental in the organization of the National Steeple Chase and Hunt Association, which registers and otherwise looks after the development of the Hunter and the Steeple-chaser.

Literature. — The literature of the Hunter is for the most part interwoven with expositions of the chase, and is not specific and direct. Yet some direct discussions will be found in the works referred to on page 416. Other references are: Peer, Cross Country with Horse and Hound; Walsh, The Horse in the Stable and in the Field, London (1871); Goodwin, The Turf Guides; Nimrod, The Chase, the Road, and the Turf; Whyte, The History of the British Turf, two volumes, London (1840); Curzon, A Mirror of the Turf, London (1892).

CHAPTER V

THE PONY BREEDS OF HORSES

By *S. B. Elliot*

PONIES are fourteen hands two inches or under, and all equine breeds in which that limit is not exceeded are classed as pony breeds. All diminutive equines are characterized by being especially close and full made with an apparent ruggedness expressed in the unusual bone and muscular development which they possess.

AMERICAN PONIES. Fig. 23.

187. The dividing line between the horse and the pony was vague and undefined until the Hackney Horse Society was established in England in 1883. All horses measuring fourteen hands or under were then designated ponies, and registered in a separate part of the stud-book. This standard of height was accepted and officially recognized by leading agricultural and horse-show societies in England, and subsequently in America. In 1905, the American Hackney Horse Society increased the height of ponies to fourteen hands one inch, and in the case of polo ponies the limit of height had previously been raised to fourteen hands two inches, which is now the generally accepted pony standard.

Adverse climatic conditions, promiscuous breeding and privation have had much to do with the development

of most breeds of ponies. Distinct types of ponies are found in almost every country, the chief types being the Arab and his near allies, the Turks, Barbs and Persians, the Mongolian, Japanese, Korean, Burma and Manipuri pony, Sumatra and Java pony, Russian, Scandinavian or Norwegian pony, the Celtic or pony of Iceland, the ponies of the British Isles, and, in America, the ponies of the western states. While some of these, perhaps, are only of remote interest in America at present, it has been thought best to discuss most of them briefly.

188. Use and value of the pony. — The usefulness and value of the pony is just beginning to be appreciated in America. Ponies cost much less to feed, consume less and thrive on rougher food than the large horse, and they will travel as far; many, in fact, will outdistance the large horse. The thirteen-hand pony will do a horse's work on half his feed and requires less attendance. Ponies have better feet, legs and wind, and are less susceptible to disease than large horses. They stand more hardship, recover more quickly from fatigue and live longer. They have, moreover, much greater intelligence, and for this reason are much less likely to take fright at objects on the road.

The principal cause of the marked superiority in constitution of the present-day pony over the horse, and of his greater intelligence, is accounted for by his having to shift for himself on the hills and wastes, and this hardiness and intelligence is transmitted to generations born in domestication. The horse reared in captivity with everything done for his comfort, has not the same toughness as the pony; no demand is made on his intelligence, and his mental faculties remain, to a great extent, undeveloped. In the pony, unsoundness of wind

or limb is almost unknown. For generations ponies have been accustomed to pick their way up and down stony precipitous hillsides. Their feet and legs consequently are of the very best, and they are remarkably sure-footed.

History of horses in warfare is replete with accounts of the endurance of ponies and their ability to thrive on poor and scanty food. Sir Walter Gilbey, in "Ponies, Past and Present," gives an interesting account. Sir Teddy, a twelve-hand pony, raced with the London mail coach to Exeter, a distance of 172 miles. He was led between two horses all the way, and carried no rider, performing the journey in 23 hours and 20 minutes, beating the coach by 59 minutes. J. C. Appleby, in his book, "Nimrod," mentions the fact that during the drawing of the Irish lottery the news was conveyed by express from Holyhead to London, chiefly by ponies, at the rate of nearly twenty miles an hour. Mr. Whyte, in his "History of the British Turf," gives an account of a thirteen-hand three-inch mare belonging to Mr. Daniel Crocker, that in April, 1754, traveled 300 miles on Newmarket Heath in 64 hours and 20 minutes, which was 7 hours and 40 minutes better than the time for which she had been backed to perform the journey; namely, 72 hours. On one of the days, Tuesday, April 23, she went 108 miles; the day before and the day after she covered 96 miles, each day. She was ridden by a boy who weighed 65 pounds, and this did not include saddle and bridle. In our own country there are many accounts of endurance of western ponies.

Nor is it only in endurance that the pony excels. His greater stamina is also evidenced in his length of life. The following instances in which ponies have attained

to great age are cited by Sir Walter Gilbey: "Mr. Edmund F. Deane, of Gaulstown Co., Westmeath, lost a pony in December, 1894, which had reached the age of 39 years; in 1896, Mrs. Pratt, of Low Pond House, Bedale, Yorks, lost a pony mare aged 45 years; on Christmas Day, 1863, there died at Silworthy, near Clovelly in North Devon, a pony that had arrived within a few weeks of his sixtieth year. Accounts of ponies which lived, and in some cases worked, until they reached 40, 38, 37 and 35 years also recur to mind."

Ponies in America are used chiefly for children's purposes and for playing polo. In Europe, in England particularly, they serve a much greater variety of purposes. Some are worked in coal mines, but a great many more are put to use above ground. Green grocers, fish mongers, market men, small merchants, all employ them for delivery purposes. Country gentlemen, doctors, land agents, in fact all persons having occasion to travel, depend upon ponies a great deal. There is good reason for stating that ponies could be used to far greater advantage in America than they are at present. For light work they could be utilized in many places instead of large horses at a considerable saving. Ponies in America, the western ponies in particular, have long been availed of for saddle purposes, but ponies as a first mount for children are just beginning to be appreciated.

189. The polo pony. — The increasing popularity of polo is attracting much attention to mounts suitable for playing the game. Polo originally was an oriental game, being the national game of the Manipuri, from whom the Europeans first learned it. It was introduced into India proper in 1864, and was played in England by the officers of the 10th Hussars in the year 1872, on

their return from service in India. It is now played in France and other parts of Europe, and is becoming very popular in America. The best type of mounts for playing the game is scarce and very costly.

The mount that is in such demand and brings such a high price, is really not a pony but a small horse. He does not necessarily belong to any distinct breed, and is generally the result of a cross. The regulation height has been raised to fifteen hands. He must be a powerful, speedy, sound, handy animal, with great staying power and courage, high in front, with sweeping shoulders and good strong hocks. The necessary speed and courage are rarely found except in those ponies that have a preponderance of race-horse blood in their veins. He must be able to carry 160 to 200 pounds' weight, make incessant turns, twists and stops at full speed, and make short spurts of hard galloping, all of which take more out of a pony than would a race out of a race horse (Fig. 23).

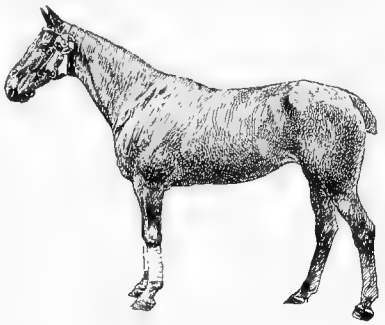


FIG. 23. — Polo pony.

The Thoroughbred race horse has the speed and courage, but rarely the strong hind-quarters and the power necessary to enable him to stop quickly and turn sharply at the gallop. The Arab, while having great staying power, is rarely sufficiently speedy; and the Mustang has not the speed or the courage to make a good polo mount, even if he had the other qualifications. The best

polo mount seems to be one that is three-quarters Thoroughbred. As laid down by E. D. Miller in his book, "Modern Polo," the polo mount should be a Thoroughbred out of a mare by a Thoroughbred; that is, it should be three-quarters Thoroughbred race horse.

In America, the mounts used to play the game are secured chiefly from the West, and the demand for mounts here is not yet anything like what it is in England. The supply is entirely inadequate to meet the demand, and polo mounts are sought for the English market not only in America, including Canada, Mexico and Argentina, but in every corner of the horse-breeding world, — Egypt, Syria, Barbary, Russia, France, Persia and South Africa. While the mounts thus secured are not equal in speed, endurance or courage to the English or American race horse, the best, when trained and fitted, command very high prices. The prices may be said to range anywhere from $300 to $3000. In fact, there is no limit to the price, as those who play the game are, as a rule, men of means to whom a really good animal is cheap at any price. The exacting qualifications, however, make first-class polo mounts rare.

Breeding polo mounts at present is somewhat of an experiment and presents many difficulties, the chief being the limit of height. All breeding of horses goes to prove the impossibility of insuring the progeny of any given size. In America, the western pony mare is bred to small Thoroughbred stallions, and in a very few cases to Arabian horses. In England, to keep the size down, pure pony blood as foundation stock is being used to found a breed of polo mounts, the fillies being bred back to stallions of the same breed as their sires, the produce of which will be three-quarters Thoroughbred. The

Thoroughbred race horse of late years has been increasing in height and small ones are likely to be only runts whose produce is likely to exceed the limit in height. The Arab in many ways is desirable, as he has the constitution, the endurance and the strength, but not the speed. The Arab, moreover, is more likely to be of the right size, and by reason of his great antiquity and the fixed character of the breed, he impresses more certainly and more markedly his likeness on his stock than any other breed.

There is generally a good demand for ponies that have been discarded from the game because of deficiency in speed, courage or other essential qualifications. They make good hacks and often good saddle ponies for children and young persons. The pony Battledor (Fig. 23), with her fore-legs bandaged, as in playing the game, is a type of light-weight western polo mount.

A polo pony stud-book has been started in England, and there is every reason to suppose that one will be started in this country in the near future.

190. The Mustang. — The ponies of the western states of America, the Mustangs, are in the case of those of the southwestern states apparently of Moorish origin, coming into this country by way of Mexico and having been brought over originally by the Spaniards. To these ponies the term Bronco is often applied, which is derived from the Spanish word " bronco," meaning rough or wild. The pony of the northwestern states and Canada, termed Indian pony, appears to be of Norman origin, although often these two breeds are more or less mixed. Very many of the small horses at the present time in the western part of the United States have been crossed more or less with the American trotter, the

Thoroughbred or the Arabian horses. These still are known as Broncos, although in recent years they are more commonly termed "cow ponies," from the use that is made of them in herding and driving cattle on the ranges.

191. The Bronco. — The Broncos, like all horses in a semi-wild state, have good constitutions, and the best of feet, but because of inbreeding and want of selection, they may not be good in general conformation. "In general, the Bronco is an exceedingly hardy, wiry little horse, possessed of considerable endurance. In the best types the head is small, clean-cut and refined, with bright, piercing eyes, small ears and attractive appearance, although many individuals have ill-formed heads. The neck of the better class is of medium length, well crested and very well carried. The body is short, deep and muscular. Broncos are frequently ridden day after day for weeks at a time, without shoes, over the rough, rocky soil, carrying a heavy man and a cumbersome stock saddle (Plate V). They weigh approximately 850 pounds, and are possessed of enormous strength for their size and weight." (W. L. Carlyle.)

These ponies of the Southwest, as a rule, do not exceed thirteen and one-half or fourteen hands in height unless cross-bred. Some of them are handsome, graceful creatures, but they do not compare favorably with the best American horses, or with imported European ponies, nor are they as good as the more northern Indian pony. They stand a great deal of hard work, however, and if broken young, can be made very serviceable. It is to be regretted that this race of exceedingly useful and picturesque animals is decreasing, as a result of the demand for a larger and more fleet horse by the cowmen which

is met by crossing with Standardbred and Thoroughbred sires. The Bronco in the wild state can be ridden down and captured without much difficulty by good, domestic horses, even when carrying the weight of a rider, if it can be approached sufficiently close to allow anything like equality in the start.

192. The Indian pony. — The pony of the northern states and northwest Canada is a better animal than that of the southern states, although often they are interbred. The northern pony rarely exceeds thirteen hands, almost never fourteen, unless he is cross-bred, and is more compact, better ribbed up and a better boned pony than the Bronco. He is short in barrel and strong in limb, has very good feet, heavy mane and tail, and often considerable hair on his legs, all of which would seem to indicate his Norman origin. These ponies are very hardy, and, while not fast, will cover long distances with ease. They are, moreover, more intelligent, have better dispositions and display more courage than the Bronco.

193. Use of Broncos and Indian ponies. — In the West these ponies are used for saddle purposes, especially for cow-herding, although they are fast being replaced by better horses. Ponies of both types are brought East and used in cities in delivery wagons and for light driving purposes, or as saddle ponies. The best of them are sometimes used as polo mounts. They are not bred, as a rule, except in the western states on large ranches, it being more profitable to raise other breeds of horses or ponies in the eastern states, where the cost of feed is high. These ponies are used as foundation stock from which to breed a more improved type of pony or horse, the mares being bred to Hackneys, trotting, car-

riage, Thoroughbred and Arabian stallions, often with a view to getting polo mounts. It is difficult, however, to get any pony or horse of much value from one cross.

194. Other American ponies. — Aside from the Mustangs of the western states, there are in North America the Sable Island ponies, the ponies found on the coasts of the South Atlantic states, and the Creole ponies of Louisiana.

The Sable Island ponies rarely find their way into the United States, principally because of the duty. They are few in number and run wild, and are not so good as some other breeds from which selection can be had on the British islands. The Sable is a small pony much like the Celtic.

Ponies of the South Atlantic states. — The ponies found along the coast of the South Atlantic states have been known to exist there for many years. They are apparently of Spanish origin, although somewhat smaller than the ponies of the western states. Little effort has been made to improve them and they are not superior in any way to the Mustangs. They are most numerous on the island of *Chincoteague* and commonly bear that name.

The ponies of Louisiana, sometimes known as the Creole ponies, also appear to be of Spanish origin. They are somewhat smaller and finer in bone than the ponies of the western states, but are little different in other respects.

Ponies of the British Isles. Figs. 24–29.

195. Ponies have been known to exist in the British islands from the earliest times. They were there at the time of Julius Cæsar's conquest and he spoke highly of

them. The ponies of the west of England are said to have been brought there by the Phœnicians when they came to trade for tin. The ponies of the northern part of the British Isles, including the Shetlands, have many characteristics in common with the Scandinavian pony, and were probably introduced by the Scandinavian invaders some time prior to the fifteenth century.

The principal ponies of the British Isles are the Hackney, Welsh, Exmoor and Dartmoor, Westmorland (Fig. 27), New Forest, the Scotch ponies, the Connemara or pony of Ireland and the Shetland pony. The last is discussed first because of its relative importance in America.

196. The Shetland pony. — The Shetland, the smallest of all ponies, is in many ways the most important in America. While in England and other countries he has been used extensively in the coal mines, in America his use is practically restricted to that of children, and as a child's pony he has no equal. Children and Shetland ponies seem to have for each other a natural affinity. Every child desires a pony, and as a considerable proportion of Americans have the means to gratify their children in such a desire, the Shetland pony is in great demand. It is imported in considerable numbers, and many are bred here. There are also many in America that are cross-bred.

The Shetland islands are situated to the north of Scotland, from which they are separated by about 150 to 200 miles of very rough and dangerous sea. There are some 120 islands, many of which are uninhabited, merely affording pasturage for a few sheep or ponies. The existence of two or three distinct types of ponies on private estates has given rise to the untrue statement that a more or less distinct type of the Shetland exists on each of

several of the Islands. There are no trees nor shrubs on the Islands, the surface being a succession of hills of rock formation with peat and decayed vegetable matter in the basins and a light covering of soil on which heather and scanty grass grow, affording the only pasturage for the ponies.

Although far to the north, the climate is greatly moderated by the surrounding waters of the Gulf Stream. There is consequently much mist and precipitation of moisture, that accounts largely for the Shetland's very long, fine hair, which in wet weather mats and is almost waterproof. This heavy coat is the Shetland's only protection against the inclement weather, as it is not housed, but is born, lives and dies in the fields, the hillsides and stone walls being the only shelter from the winds that are constantly blowing, and which in winter are very penetrating.

197. History of the Shetland pony. — Ponies have been known in the Shetland islands from the earliest times of which there is record. From the finding of the Bressay stone recently, there appears to be good evidence that they were there prior to the Norwegian invasion in 872. According to some early writers, the Scandinavian invaders introduced the foundation stock prior to the fifteenth century.

The government returns for 1891 gave the number of horses, which included ponies, in the Islands as 4803, but because of the demand of recent years the ponies are steadily decreasing. While on a tour of the Islands in 1906, the writer made a careful estimate of the number of ponies, and could not account for over 4000 of all ages and sexes, and he doubts whether there are much over 400 foals produced on the Islands annually. In America there have been registered in the stud-book

about 16,000 of these ponies, and as the stud-book has been open for about thirty-four years, this number includes those that have died in that time. The Shetland pony may be considered to be comparatively rare.

198. Description of the Shetland pony. — The limit of height established by the Shetland Pony Stud-book Society is ten hands two inches. Ponies over this height cannot be registered, although in America the Shetland Pony Club has increased the height to eleven hands two inches. The average height of the pure Shetland may be said to be nine to ten hands. The size is more or less a result of the feed, and when food is supplied in abundance there is a gradual increase in size in successive generations. This increase is less apparent in highly bred ponies. The weight of mature Shetlands should approximate 325 to 375 pounds, for ponies of average height. The best specimens are compact in build, having deep body, heavy muscular quarters, short legs, short, broad back, deep, full chest, good bone, short, muscular neck, small head and ears, prominent eyes and a very docile disposition. In color, they are commonly brown, black and bay. There are other colors, such as dun, chestnut, gray and a few with white markings. Piebalds are not considered desirable, although there is a demand for broken colors in America (Fig. 24).

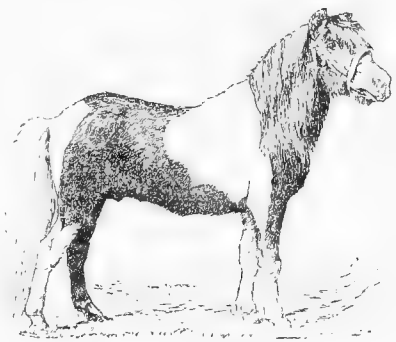


FIG. 24. — Shetland stallion.

The coat of the Shetland pony is a revelation to those who are not familiar with him. The young ponies under two years of age, in particular, have very long, shaggy coats. Towards spring the hair loses its luster and has a very rusty, shabby appearance. Owing to the hair being very fine and matted, it is shed in patches, often hanging in taglocks, which makes the pony the very roughest and shaggiest little creature imaginable. Once he has shed, his coat is fine and glossy and he is much more active in his movements. The mane is generally heavy and long, and adds much to the attractiveness of a well-kept pony.

The Shetland pony combines with the highest order of equine intelligence a disposition wonderfully free from vice and trickiness.

199. Uses of Shetland ponies. — In the Shetland islands, the ponies are used little. They are sometimes employed in carrying peat from the hills to the crofts, and are the most wonderful weight-carriers in the world, a nine-hand pony being able to carry a full-grown man over rough ground for some distance. They are wonderfully hardy and will cover surprising distances. In the coal mines many of the ponies travel upwards of thirty miles a day, drawing a load of 1200 to 1400 pounds (on rails). In America, as has been said, the chief use of the Shetland is as a child's pony and for light driving. Shetland ponies are very salable, the demand being usually in excess of the supply. The smaller sizes are most popular in England, but not in America. They bring good prices, about as much at maturity as the average large horse, and are easy and inexpensive to raise. They break easily and are a constant source of usefulness and pleasure, as well as an ornament to any farm.

200. Feeding and care of Shetland ponies. — In the winter time, it is usual to feed the ponies. In May, they are turned on common pasture lands to shift for themselves. In the autumn, the ponies come down from the hills and feed on the patches of fresh grass which have been preserved around the cultivated areas. In severe winters, when feed is scarce, they eat the seaweed. Contrary to the popular impression prevailing in America, the ponies do not run wild. They are all definitely owned and cared for more or less. There are few large herds. Most of the ponies are held by the crofters or farmers in small numbers.

201. Organizations and records. — The American Shetland Pony Club was organized in 1888. The office of its secretary is at Lafayette, Indiana. Thirteen volumes of the American Shetland Pony Stud-book have been issued, registering over sixteen thousand ponies. The Shetland Pony Stud-book Society, with the secretary at Aberdeen, Scotland, is the official organization of the breed in Scotland and Shetland.

202. The Welsh pony. — The Welsh pony is more numerous than any other breed that comes from the British Isles. It is difficult to discover the exact number, as there appear to be no statistics on the subject. He wanders over the hills and waste-lands of all the twelve counties of Wales and also on the borders of Shropshire, Hereford and Monmouth. Inured from the earliest foalhood to the roughest and poorest pasturage, he is as sure-footed as the goat, has good shoulders, strong back, neat head and the best of legs and feet. Many of the best hunters in England trace their origin on the side of the dam to a Welsh mare. The breed has been improved from time to time by the introduction of superior alien blood, chiefly Thoroughbred, Arabian and Hackney.

The Polo Pony Society makes two divisions of Welsh ponies, those of North Wales and those of South Wales. By the description given in Vol. 5 of the stud-book of this society, the ponies of North Wales do not exceed twelve hands two inches. This refers undoubtedly to the Welsh pony in a pure state, as the writer has seen many Welsh cobs bred in Wales from Welsh mares and Hackney stallions that were fourteen hands and over in height. The pony of North Wales has straight legs, well-set-on tail and good shoulders.



FIG. 25. — Welsh stallion

The pony of the South Wales division seldom exceeds thirteen hands, and in a pure state is about twelve hands. The writer has seen many of them not over eleven hands. They are likely to be low at the withers, and have faulty hind-quarters, the rump being steep and the hocks sickled, although these defects are being overcome by improved keep of the young ponies and better breeding. The color of the Welsh pony most preferred is bay or brown. Gray or black is allowable, but dun or broken color is considered objectionable.

The strength and endurance of these Welsh ponies is remarkable. They have legs that work cannot seem to destroy, and have wonderful carrying power. It is not uncommon in Wales to see a man weighing upward of

200 pounds riding one of these little ponies. As a rule, they have good carriage and action, and make desirable ponies for children who have had some experience in horsemanship (Figs. 25, 26). In England, they are used largely as a hack and by tradesmen. There are breeders using this pony as a basis from which to breed polo mounts, crossing with small Thoroughbred or Arab stallions.

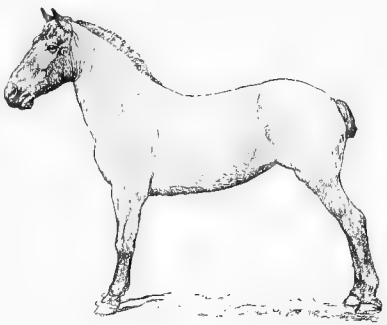


FIG. 26. — Welsh pony mare.

In America, Welsh ponies are used principally for children's purposes. Many are imported and a number are bred here. Now that the pony is becoming more popular, and the demand is increasing, the breeding of the Welsh pony should prove very profitable.

The organization interested in the improvement of these ponies is the Welsh Pony and Cob Society, with headquarters at Greenfield, Penybont, Radnorshire, Wales. The American Welsh Pony and Cob Society, with headquarters at Lafayette, Indiana, has published one volume of its stud-book embracing nearly eight hundred entries.

203. Exmoor and Dartmoor ponies. — The ponies from those districts in England known as Exmoor and Dartmoor are much fewer in number than most of the other breeds in the British Isles, and are rarely imported into this country. They range in height from eleven to thirteen hands two inches. The original color of the Exmoor was a buffish bay with mealy nose. It is supposed

to have been brought to England by the Phœnicians when they visited the shores of Cornwall to trade in tins and metals.

Stud-book No. 5, of the Polo Pony Society, contains a description of the Exmoor pony. The average height is given as twelve hands. The best of the Exmoor ponies have strong backs and loins and good substance. They are generally bay or brown, with black points, wide foreheads and nostrils, mealy noses, sharp ears, good shoulders and back, short legs and good bone. They are very tough and hardy, and have been known to cover long distances. Youatt states that in the year 1860, a farmer who weighed 196 pounds rode an Exmoor pony from Bristol to South Moulton, a distance of 86 miles, beating a coach that traveled the same road.

The official description of the Dartmoor ponies and those of North Wales is identical, with certain amendments in addition. Those ponies that are over fifteen hands would seem to be cross-bred, as the pure Dartmoor never exceeds thirteen hands. In color, the Dartmoor ponies are brown, black or bay. There are some grays. Other colors are considered objectionable. Efforts are now being made to improve them by the introduction of good stallions of the best pony breeds.

204. The New Forest pony. — Ponies have been bred in a semi-wild state from the earliest times in the county of Hampshire in England, a district covering some 92,395 acres, of which 44,978 are still uninclosed waste land. The greater part of this common land is poor and boggy moor. It is estimated that there are about 2500 of these ponies. Like most of the other ponies in the British Isles, they have been much improved in recent years. Lord Arthur Cecil owns a large number, and he turns out with

his mares thirty to forty good stallions every season. Many of his stallions are from the island of Rum, off the western coast of Scotland, and are the original black Galloway, found in a wild state on the island in 1840, by his father, the late Marquis of Salisbury, and have been kept almost pure. In 1888, Lord Arthur secured the whole stock of these Rum ponies. They are inclined to be a little coarse in the head, but this defect is disappearing



Fig. 27. — English Westmorland Fel pony stallion.

with breeding and good keep. Most of the Rum ponies are black, although some are bay or brown; many of them have the hazel eye, although this is not unknown in the Exmoor and Welsh ponies also.

The New Forest pony, because of not having had to endure the severe climate of the hills, is likely to be less hardy than the hill ponies. The height, as given by the Polo Pony Society, is twelve to thirteen hands. The writer has seen some of these ponies in England, and they are not equal to many of the other breeds, but Lord Arthur Cecil is very enthusiastic about them, and is doing much

to improve them. They are likely to be low at the withers and not good in the hind-quarters, being droopy and cow-hocked. The cross of the vigorous Rum pony, however, will do much to correct this, as he is very strong in these points, having excellent hind-quarters and good shoulders. Aside from the Rum ponies, Thoroughbred and Arabian stallions are also being used, with marked improvement.

The New Forest ponies are generally more spirited than most of the other British ponies. Like all ponies that have been brought up on poor pasturage, they improve wonderfully on good keep, and, with careful selection in breeding, astonishingly good results may be obtained.

The organization concerned with the interests of this breed is known as the New Forest Pony Association. There is no organization in America for this breed.

205. The Hackney pony (Figs. 28, 29). — The Hackney horse has long been bred in England and owes his present status to the most careful methods of breeding, rearing and training. Contrary to the impression given by his name, he is not a hack, but is, on his native heath, the highest type of driving horse. In 1883, when the Hackney Horse Society was formed in England, the standard of height for the pony was established as fourteen hands, and a separate part of the stud-book was set aside for the registration of ponies. Subsequently, this height was in-

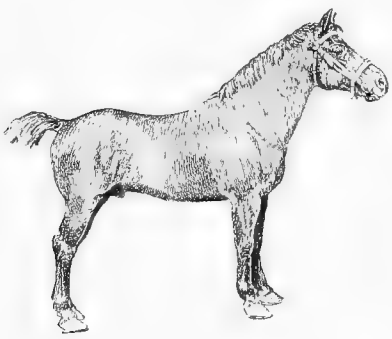


FIG. 28. — Hackney pony stallion.

creased to fourteen hands one inch, and about nine years ago the same height was adopted by the American Hackney Horse Society, established in 1891. Inasmuch as the Hackney brings a higher price, both in England and America, than any other pony, he may be considered the most valuable of all ponies. In America, as in England, judging from the demand and prices paid, he appears to be steadily growing in popularity.

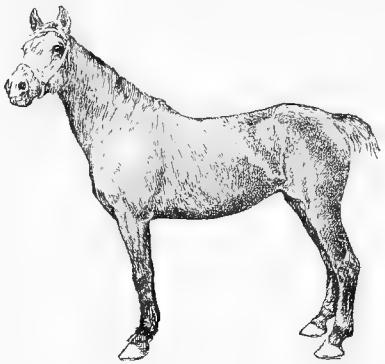


FIG. 29. — Hackney pony mare.

[The Hackney pony is the small-sized Hackney horse. For fuller notes, see *Hackney Horse,* pp. 44-57.]

206. The ponies of Scotland. — Because of the proximity of the Shetland islands to Scotland, there are many Shetlands there, as in fact there are in England, and many of the ponies of Scotland are but a cross between the Shetland and a Welsh or some other pony. Many of the larger ponies of Scotland resemble much the Welsh cob. In times past a pony was often referred to as a Galloway. In fact, to this day the name is often seen.

The Galloway, so-called from the part of Scotland known by that name, was once very popular. Youatt, in his second edition, 1846, describes it as thirteen to fourteen hands, sometimes more, bright bay or brown with black legs and small head. As the size was not considered desirable, it was crossed with larger breeds, until now the original Galloway has entirely disappeared.

207. The Connemara, or pony of Ireland. — The Connemara, or pony of Ireland, is found chiefly in the County Galway, Ireland. It is an extremely wiry pony, showing a great deal of the Barb or Arab blood. It stands twelve to fourteen hands in height, sometimes more. Like other breeds that run practically wild in a hilly country, it is hardy, active and sure-footed. It has a thick and shaggy coat in response to the climatic condition of its habitat. In color, it is black, brown or bay and sometimes chestnut, betraying its descent. Often individuals are pacers. Since the middle of the last century it has been allowed to deteriorate, but for some years past systematic endeavors to improve the breed by introduction of Thoroughbred and Hackney pony stallions have been in progress.

Other Ponies

208. The Celtic, or pony of Iceland. — The Celtic, or pony of Iceland, the Hebrides, north of Ireland, and the Faroes, is a small-headed pony with prominent eyes, slender limbs and small joints. A typical Celtic pony is generally of yellowish dun color, with a dark dorsal band and with some indication of stripes on the shoulders and in the region of the knees and hocks. These ponies have a close resemblance to the Scandinavian pony, and it is probable that they have a common origin. The Shetland, Welsh, New Forest and other ponies of the British Isles probably have a certain amount of Celtic blood, as ponies are frequently found of the former breeds with strong characteristics of the Celtic pony.

The ponies of the Hebrides, the Faroes and the north of Ireland are little known in this country, but the Iceland ponies are sometimes imported into America, although

few are bred here. They are strong, sturdy, useful little animals, rarely exceeding thirteen hands, often reaching only eleven and one-half or twelve hands. They are used for light driving purposes and as children's ponies, and in England often as pit ponies.

209. The Arabian pony. — The Arab pony is the Arab horse under the given height. For full discussion, see *Arab Horse*, pp. 134–144.

210. The Russian pony. — Russian ponies are traceable to eastern origin. They are hardy, serviceable and often of beautiful appearance. They rarely exceed fourteen hands in height, many being but twelve to thirteen hands. They are not common in America, but they are often seen in England, where they are used for light driving purposes or in the pits. In Russia, they are used for trade purposes and many of the cavalry mounts are but ponies. They have great endurance, and the best of them are not surpassed in usefulness by any other breed.

211. The Scandinavian or Norwegian pony. — The Scandinavian pony is closely allied to the Russian, and is evidently of the same origin. Not only have these ponies worked up through Russia to Norway and Sweden, but in the old days of the Vikings there is little doubt that many fine specimens of the Arabian were introduced into the country. Like the Russian, the Norwegian pony is practically unknown in America, but many of them are imported into England, where they are used generally for light driving purposes or in the pits, some being used as polo mounts.

212. Miscellaneous ponies. — The Mongolian, Japanese, Korean, Burma and Manipura, Sumatra and Java ponies can be of little interest to American breeders. In common with all ponies they have to a greater or lesser

extent the hardiness, endurance, sound feet and legs that are the inheritance of a half-wild existence under adverse conditions. These ponies are exceedingly rare in America, and we have many types much superior in conformation and other desirable qualities nearer home from which to breed.

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CHAPTER VI

MULES AND JACKS

By *Charles Wm. Burkett*

THE MULE is a hybrid, a cross between the horse and the ass. An offspring of the male ass or jack and the mare is known as a mule, while the progeny of a stallion and a female ass is designated as a hinny.

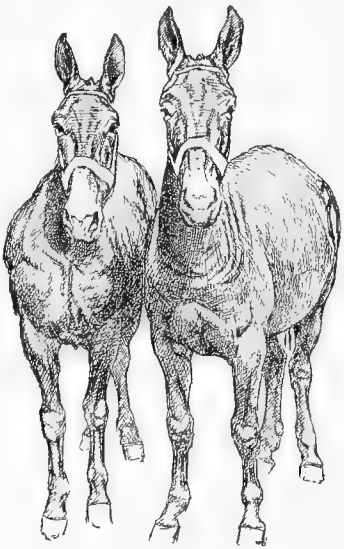


FIG. 30.—Pair of sugar mules.

213. History. — The mule has been known from the earliest times, some of the old Roman writers having discussed it in their descriptions of Roman agriculture.

In America, the mule has been in use from colonial days. As early as 1591, jacks were brought to this country by the Spaniards. The first of the kind, no doubt, went to Mexico. One of the first men to engage in the production of mules was General Washington. The superior qualities of the mule were early recognized by southern planters.

214. Description. — The mule is more valuable than the hinny, since it has greater size, more style, finish

and stronger bone, requisites that go to make the animal valuable for draft purposes (Fig. 30). From this description it follows that the hinny is smaller in size, somewhat unsightly in form, lacking in finish and adapted to environments that call for lighter work and effort. Still, the hinny is able to endure drudgery and hardship equal to and often greater than the mule can stand.

215. Form.—The mule that most nearly approaches the ideal type follows the horse closely in all points of form. The body, however, is commonly more cylindrical and somewhat smaller than the body of the horse, a factor not altogether in favor of the mule. A large body, therefore, is more desirable than a small body; but largeness of body must not be confused with paunchiness, for this is always objectionable. Producers of mules are realizing that a critical trade is demanding animals of a superior conformation in the region of the body, much more so than this same trade demanded a few years ago.

Mules of ideal conformation possess straight hard legs, showing superiority with every movement. The bone should be smooth and dense, but ample; the tendons prominent; and the muscles well developed. While the feet of the mule are narrower and longer than those of the horse, a large foot is always to be desired.

216. Market class of mules. — Mules are generally grouped into four general classes on the larger markets.

(1) *Sugar and cotton mules.* — While these are raised in the West, a great majority of them find their way into the southern states, where they are used on cotton-farms or sugar-farms. It is a good class of mules that goes into this section. They are large, heavy and of splendid type. On the Kansas City market the cotton and sugar mules stand fifteen to sixteen hands, while the

Chicago market calls for a somewhat higher animal. The cotton or sugar mule that stands sixteen hands should weigh 1050 to 1350 pounds. The class of mules that is used on the sugar plantations is of the best quality, owing to the fact that the sugar plantations are worked by wealthy syndicates that could not afford to use poor mules. They show a very smooth finish, a marked refinement about the head and neck and a fine quality of bone. In fact, no class is superior to the sugar mule in smoothness and finish. The sugar class of mules shows also greater uniformity in quality, height and weight than do those used for any other purpose. Cotton mules, as a rule, are poorly graded, and lack the uniformity observed in the sugar class. Both cotton and sugar mules begin service, usually, at three or four years of age, although some at five years; but they are at their best when six to nine or ten years of age.

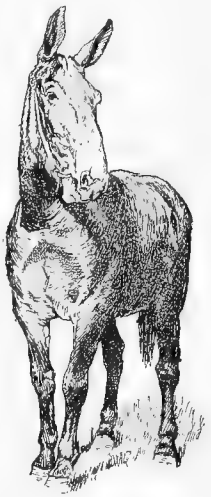


Fig. 31. — A good representative of the large heavy mule.

(2) *Lumber mules.* — For the necessities of the woods, where mules are used in great numbers for purposes of lumbering, a very heavy, strong and rugged animal is needed; hence, we find the lumber mules extremely tall and large, usually fifteen to seventeen or more hands in height. Quality is not of so much importance as the ability to do hard and rough work, and much of it; therefore, weight is especially essential. There is great variation in this class of mules, everything being sacrificed excepting capacity to do hard work, ruggedness to endure

hardships and fatigue, and size and height to supply power.

(3) *The general-purpose mule.* — This animal is seen wherever railroad construction is in progress; he is often observed on the farm; he is found on the roads wherever heavy hauling is being done, in the cities, towns and along rivers. One of the requirements of this class is that it be rugged, strong and capable of doing hard work. This mule competes with the ordinary draft horse, and compared with the average draft horse is superior for many kinds of work. In height this class ranges from fifteen to sixteen and one-half hands. The weight varies from 1000 to 1400 pounds. The Chicago market grades the general-purpose mule a little heavier and a little higher than either the Kansas City, the St. Louis or the St. Paul markets.

(4) *The mine mule.* — Mine mules are generally classed as either pitters or surface mules. They grade into the smallest of these four groups, standing ten and one-half to fifteen hands high, are chunky and hardy, and possess a heavier bone in proportion to size than those of the other classes. The white mule is never used in the mines, for the reason that it tends to frighten other animals; hence, dark bay, brown or black are the only colors desired for this purpose. Those mules selected for the pits are of heavy bone and of good weight, capable of long, steady pulls with rather heavy loads. The surface class, while heavy, is somewhat taller than those in the pit, and may be lighter in bone.

217. Use of the mule. — The mule is a draft animal, found wherever drudgery is performed and strenuous effort demanded. If the earth on which the feet must go is broken, marshy and wet, there you will find the mule in use; if climates are hot and sultry and harmful to health; if paths are precipitous and dangerous, requiring

surefootedness and steadiness; if bold courage is required, by the great demands made, it is the mule that is drafted into service, because it is well known that he will be found equal to the occasion. He is found in the cotton-fields of the Black-belt, in the sugar-fields of the South, on the stiff prairie lands of the West, and on the difficult mountain trails. The mule has been born and bred to this environment. In it he serves better than any other beast of burden, for he asks less and does more; because he enjoys immunity to disease in a large measure; his span of life is many years; and his demands on his master are few, simple and reasonable.

The mule also has place as a saddle and carriage animal, notably in parts of the South and central West.

218. Feeding. — There is a prevailing opinion that mules may be fed on less food than horses of the same size and weight; but this is an error. While it may be true that the mule will utilize inferior feeding-stuffs to a better advantage than his more aristocratic contemporaries, still, to do the work that he is called on to do, he requires a quantity of food equally as great as that of his horse relatives. The mule has marked preference for certain foods, or a marked dislike for other foods, a discrimination even more sensitive than that of the horse.

219. Distribution. — An English writer describes the distribution of mules as follows: "The mule line extends north from the equator, including Africa and Europe, up to 45° of latitude, and in Asia and North America as far as 35°. On the south side of the equator we can include most of Africa, the northern part of Australia and South America, as far south as 35°. Within this vast radius hundreds of thousands of mules are bred each year. Many of the mules are big, heavy animals,

with great power and bone, and stand sixteen to seventeen hands high."

Kentucky and Tennessee have been noted from early days as mule-breeding centers. Many noted jacks have gone to these states, both native and those representing the best of the Andalusian, Catalonian, Majorcan and the Maltese types. During recent years, it has been learned that while soil and climate may influence quality in the individual, care in the selection of feeds and in the breeding types is also a requisite of successful mule production. Consequently, Texas, Georgia, Missouri, Kansas and Oklahoma, as well as many other states, are vying with Kentucky and Tennessee in producing mules of high quality that find favor in all parts of the world.

220. Mule production. — Up to the time of the Civil War, but two breeds of jacks were used, the Maltese and the Spanish. The Andalusian and Catalonian from the mainland, and the Majorcan, from the island of Majorca, were formerly known as Spanish. So great has been the demand for jacks of Malta that practically all have been exported, and now but few are left on the island.

The jacks of Italy have not been successful as mule-producers in this country, and consequently have entered but slightly into the mule stock here. At the present time, there are three noted breeds of jacks : the native, the Poitou and the Catalonian. In regard to favor and importance, perhaps, these breeds should be ranked as mentioned here. Many of our noted mule-breeders prefer native jacks to those of foreign breeds. The native jack produces a high finish, a good form, strong legs, broad hocks, and is already peculiarly adapted to our environments. Besides these qualities, he extends to his progeny immunity to diseases to an unusual degree, and an exceptionally long life.

221. The Poitou jack. — The Poitou jack is a French breed of Spanish origin, and is ranked by some breeders as first among jack breeds. He is liked especially for agricultural use, because of the excellence of his limbs and feet. The legs are short and straight with plenty of bone, while the pasterns are short, as required of a draft animal. The legs are flat and hard, whilst the feet are large and more expanded than those of any other breed of jacks. In this respect, the Catalonian jack is not equal to the French breed, although the Catalonian is finer in limbs than the Poitou.

With the Poitou jack, both the head and ears are enormous; in fact, French breeders are inclined to regard these as of very great importance, — more desirable than the smaller kind. The neck is strong. Withers are not well marked, but this is true of all jack races. The broad chest and enormous legs of the Poitou jack promise much in mule-breeding.

The Poitou jack varies from thirteen and one-half to fifteen hands, which is about the height of native, Catalonian and other Spanish breeds. The height of a jack is not nearly so important as the character of the head, ears, legs, feet and barrel. If height can be secured from the dam, it is better to sacrifice height in the jack, in order to get other and more desirable qualities. The breed is of less importance than individual qualities.

Prices for individuals of the Poitou breed are a little higher, perhaps, than for either the Catalonian or native, but it is possible to get a good Poitou jack for $1000 to $1500, although some have sold at $2500 to $3500 each.

222. Importance of mules. — The raising of mules is demanding more attention from year to year. Some of the reasons for their increasing popularity may be briefly

summarized as follows: (1) It costs less to breed and raise a mule to a serviceable size than a horse. (2) Less time is required to prepare a lot of mules than a lot of colts for the market. (3) Young mules may be sold readily at any age, and in any number. (4) Mule colts uniformly command a higher price than horse colts of similar relative quality and value. (5) Mules are subject to fewer diseases and less liable to serious accidents.

223. The type of jack to use. — The jack for mule production should be at least fifteen hands high and should carry maximum weight, but this does not mean that the jack should be fat; large size, that with it may go heavy bone, a broad chest and great strength in the region of the hips; a large strong foot is desirable also. To these features should be added all the style attainable (Fig. 32). Associated with size will usually be found a rather large head, somewhat heavy and coarse, and not of the best quality; but it is better to sacrifice quality if weight and substance, requisites of the first importance in the mule, may be secured.

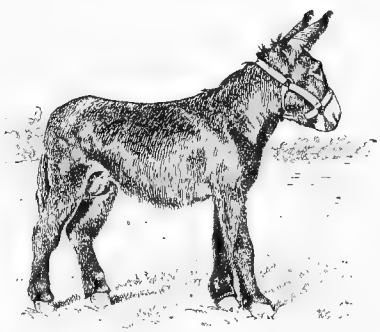


FIG. 32.— Poitou jack.

224. The kind of mare to breed from. — A common error is to suppose that as soon as a mare becomes diseased and unfit for horse-breeding she may be used for the production of mules. Perhaps this accounts for so many inferior mule colts. It matters not how superior the

jack may be, unless the dam is equally sound, and of equally good conformation, one will seldom succeed, if ever, in producing colts of high quality and of great usefulness. She should possess good length, with a large, well-rounded barrel; her head must be fine and clean, and attached to a neck of desirable proportions; her chest broad, her hips wide, and, finally, her style, bearing and breeding of high order.

For the production of big mules, large draft mares only will serve. One may take good grade mares of the Percheron, Clydesdale, Shire or Belgian breeds; either is good and all are satisfactory. Some of the highest class but not the largest mules are out of Saddle, Standardbred or Thoroughbred mares. A dip of hot blood is favored by most mule-breeders.

225. Color. — Perhaps color is but a play of the fancy. Still, in the case of the jack it suggests lineage and purity of breeding. Generally speaking, a dark color is preferable, if not altogether demanded, in the jack. Black, with white points, is the best fashion. With mares, let the color be dark also: bay, black, brown or chestnut. Good color in the dam will insure good color in the colt, a matter of no small importance for a discriminating public. There is no special merit in the color, and the breeder must be careful not to sacrifice quality, size and substance for color.

226. Organizations and records. — It has only been within the last twenty-five years that an American society has undertaken to advance the interest in jacks and jennets and in mule-breeding. The "American Breeders' Association of Jacks and Jennets," issued the first studbook in 1891. The office of the secretary is at Columbia, Tennessee. A jack stock registry has recently been organized in Kansas City, Missouri.

CHAPTER VII

THE MILITARY HORSE

Figs. 33, 34.

For military purposes, several distinct types of horses are required according to the use to which they are to be put; and each type must conform carefully to a standard set by the War Department. The specifications for each type issued by the War Departments of the United States and Great Britain (for Canada) are inserted for their reference value, and also that farmers interested in breeding horses for army use may be informed as to what is required.

227. Horses, general description. (U. S. War Dept.)

Head. — Small and well set on neck; with ears small, thin, neat and erect; forehead broad and full; eyes large, prominent and mild, with well-developed brow and fine eyelid; vision perfect in every respect; muzzle small and fine; mouth deep; lips thin and firmly compressed; nostrils large and fine; and branches of underjaw (adjoining neck) wide apart.

Neck. — Light, moderately long and tapering toward the head, with crest firm and longer than underside; mane and forelock fine and intact.

Withers. — Elevated, not unduly fine, well developed and muscled.

Shoulders. — Long, oblique and well muscled.

Chest. — Full, very deep, moderately broad and plump in front.

Fore-legs. — Vertical and properly placed; with elbow large, long, prominent and clear of chest; fore-arm large at the elbow, long and heavily muscled.

Knees. — Neatly outlined, large, prominent, wide in front, well situated and well directed.

Back. — Short, straight and well muscled.

Loins. — Broad, straight, very short and muscular.

Barrel. — Large, increasing in size toward flanks, with ribs well arched and definitely separated.

Hind-quarters. — Wide, thick, very long, full, heavily muscled, rounded externally and well directed.

Tail. — Fine and intact; well carried and firm.

Hocks. — Neatly outlined, lean, large, wide from front to rear, well situated and well directed.

Limbs. — From knees and hocks downward vertical, short, wide laterally, with tendons and ligaments standing well out from bone and distinctly defined.

Pasterns. — Strong, medium length, not too oblique and well directed.

Feet. — Medium size, circular in shape, sound; with horn dark, smooth and of fine texture; sole moderately concave, and frog well developed, sound, firm, large, elastic and healthy.

Each horse will be subjected to a rigid inspection and any animal that does not meet with the above requirements should be rejected. No white or gray horses will be accepted.

228. Horses, special descriptions. (U. S. War Dept.)

Mature cavalry horses and saddle horses for mountain artillery, Signal Corps, Engineer Corps, Infantry and other purposes.

The mature horse must be sound, well bred, of a su-

perior class and have quality; gentle and of a kind disposition; well broken to the saddle, with light and elastic mouth, easy gaits and free and prompt action at the walk, trot and gallop; free from vicious habits; without material blemish or defect.

A gelding of specified color, in good condition; from 5 to 8 years old at time of purchase; weighing from 950 to 1100 pounds, depending on height, which should be from 15 to $15\frac{3}{4}$ hands, and otherwise to conform to general description for horses (Fig. 33).

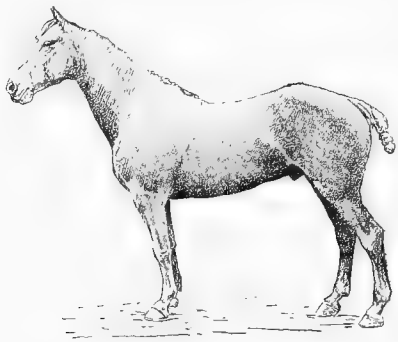


Fig. 33. — The coachy horse or charger.

Artillery horses for light and horse batteries. The artillery horse for light and horse batteries must be sound, well bred, of a superior class and have quality; of a kind disposition, well broken to harness and gentle under the saddle, with easy mouth and gaits, and free and prompt action at the walk, trot and gallop; free from vicious habits; without material blemish or defect.

A gelding of specified color, in good condition, from 5 to 8 years old at time of purchase; height from $15\frac{1}{2}$ to 16 hands; weight from 1150 to 1250 pounds, and otherwise to conform to general description for horses, except that the neck and shoulders of the artillery horse should be somewhat more heavily muscled than the cavalry horse, and shoulders so formed as to properly support the collar (Fig. 34).

Horses otherwise satisfactory which fall short of or exceed these limits of weight by not more than 50 pounds, due to temporary conditions, may be accepted.

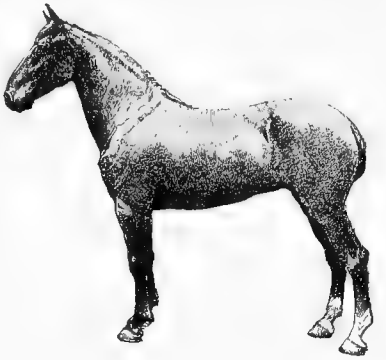


FIG. 34. — Light artillery horse.

The artillery horse for light and horse batteries is required for quick draft purposes, and should be heavy enough to move the carriage ordinarily by weight thrown into the collar rather than by muscular exertion. Long-legged, loose-jointed, long-bodied, narrow-chested, coarse and cold-blooded horses, as well as those which are restive, vicious or too free in harness, or which do not upon rigid inspection meet the above requirements in every respect will be rejected.

Artillery horses for siege batteries.

A gelding or mare conforming to the above specification for horses for light and horse batteries, except that the animal should be from 16 to 17 hands high and weigh from 1350 to 1650 pounds.

A smart, active heavy draft horse with plenty of bone and substance and enough quality to insure staying power in fairly fast work is required for this service.

Specifications for mounts for use in the Panama Canal Zone.

A gelding, stallion or mare of specified color, in good condition; from 4 to 8 years old at time of purchase; weighing from 800 to 950 pounds, depending on height,

which should be from 14 to 15 hands, and otherwise to conform to general description for horses.

Stallions and mares will be purchased only when exceptionally fine individuals and then only by special authority.

Medium draft horses.

The medium draft horse must be sound, well bred and of a superior class; gentle and of a kind disposition, thoroughly broken to harness, with easy mouth and free, prompt, straight and regular action at the walk and trot; free from vicious habits; without material blemish or defect, and otherwise to conform to the general description for horses, except neck and shoulders, which should conform to specifications for artillery horse.

A mare or gelding of uniform and hardy color, in good condition; from 5 to 7 years old at time of purchase; weighing from 1200 to 1400 pounds, depending on height, which should be from $15\frac{1}{2}$ to $16\frac{1}{2}$ hands.

Light draft horses.

The light draft horse must be sound, well bred, of a superior class and have quality; of a kind disposition; thoroughly broken to harness; with easy mouth, and free, prompt, straight and true action at the walk and trot; free from vicious habits; without material blemish or defect, and otherwise to conform to the general description for horses, except neck and shoulders, which should conform to specifications for artillery horse.

A mare or gelding of uniform and hardy color, in good condition; from 5 to 7 years old at time of purchase; weighing from 1100 to 1200 pounds, depending on height, which should be from $15\frac{1}{2}$ to 16 hands.

Young horses for cavalry, artillery and other purposes.

The young horse must be sound, well bred, of a superior class and have quality; gentle, free from vicious habits and of a kind disposition; broken to halter, with free and prompt action at the walk, trot and gallop; without material blemish or defect, and otherwise to conform to general description for horses, and also to the following special requirements:

A mare or gelding of specified color in good health and fair condition.

Mares will be purchased only when exceptionally fine individuals and then only by special authority.

Two-year-olds. — Minimum height, $14\frac{3}{4}$ hands; minimum weight, in flesh, 750 pounds. No two-year-olds will be purchased except when specially authorized.

Three-year-olds. — Minimum height, 15 hands; minimum weight, in flesh, 850 pounds.

Four-year-olds. — Minimum height, 15 hands, minimum weight, 900 pounds. Weight depending upon height.

229. Mules. (U. S. War Dept.)

Specifications for draft mules.

The draft mule must be sound, well bred and of a superior class; of a kind disposition; free from vicious habits; gentle and well broken to harness, with free and springy action at the walk or trot; without material blemish or defect, and otherwise to conform to the following description:

A mare or gelding of uniform and hardy color, in good condition; from 3 to 7 years old; weight and height to be as follows:

Three-year-old mules will be purchased only when exceptionally fine individuals.

Wheel mules to weigh from 1150 to 1250 pounds and be from $15\frac{3}{4}$ to $16\frac{1}{4}$ hands high.

Lead mules to weigh from 1000 to 1150 pounds and be from 15 to $15\frac{3}{4}$ hands high.

Head. — Well formed and of medium size, with ears long, tapering and erect; forehead broad and full; eyes large, clear, prominent and mild, with well developed brow and fine eyelid; vision perfect in every respect; teeth sound and meeting vertically; tongue free from blemishes; muzzle well rounded and firm, with large nostrils.

Neck. — Medium length and smoothly joined to the shoulder and withers, with crest firm, full and inclined to arch.

Shoulders. — Long, oblique, well and smoothly muscled, and so formed as to provide proper support for the collar.

Chest. — High, wide, very deep and full.

Back. — Short, straight and well and smoothly muscled.

Loins. — Broad, straight, very short and muscular.

Barrel. — Large, with ribs well arched and definitely separated from each other.

Fore-legs. — Vertical and properly placed; with elbow large, long and clear of chest; fore-arm large, very long, heavily muscled and vertical.

Knees. — Large, wide in front, well placed and free from blemishes.

Hind-quarters. — Wide, thick, very long, full, heavily muscled, rounded externally and well directed.

Hocks. — Neatly outlined, lean, free from puffs, large, wide from front to rear and well directed. Gaskins well developed.

Limbs. — From knees and hocks downward vertical, short, wide laterally, with tendons and ligaments standing well out from bone and distinctly defined.

Pasterns. — Strong, medium length, not too oblique and well directed.

Feet. — Medium size and round; with horn dark, smooth, and of fine texture; frog well developed, elastic and healthy.

Each mule will be subjected to a rigid inspection, and any animal that does not meet the above requirements should be rejected.

Specifications for pack and riding mules.

Pack and riding mules will conform to specifications for draft mules, except as follows: Height from $14\frac{1}{4}$ to $15\frac{1}{4}$ hands; weight from 900 to 1100 pounds. Of stocky build; neck stocky, broad and strong; back short and straight, showing strength of loins; barrel very large and deep, indicating a good feeder; dock low and stiff; pasterns short, strong and not too oblique.

Specifications for pack and riding mules for use in the Panama Canal Zone.

Pack and riding mules for use in the Panama Canal Zone will conform to specifications for draft mules, except as follows: Height from 13 to 14 hands; weight from 700 to 850 pounds. Of stocky build; neck stocky, broad and strong; back short and straight, showing strength of loins; barrel large and deep, indicating a good feeder; dock low and stiff; pasterns short, strong and not too oblique.

230. Horses required by the British War Office. — The following specifications, issued by the British War Office, designate the types of army horses called for in Canada. A discussion of the breeding of horses in Canada for army use will be found in Appendix I of "The Horse," by Roberts.

The classes and types of horses required for the army may be generally described as follows: (1) *Chargers*

(for officers). — Height from 15 hands 1 inch to 15 hands 3 inches. (2) *Riding horses* (troopers). — Height from 15 hands 1 inch to 15 hands $2\frac{1}{2}$ inches. (3) *Cobs* (for mounted infantry). — Height from 14 hands 2 inches to 15 hands. (4) *Draft horses* (for gun and wagon). — Height from 15 hands 2 inches to 15 hands $3\frac{1}{2}$ inches.

Age. — From 4 years (off) to 6 years.

Color. — Bays, browns and blacks preferred, but chestnuts will be accepted. Whites, grays, piebalds or skewbalds, etc., are required only for special purposes. Light, washy-colored horses are not accepted.

Sex. — Geldings or mares. Entire or unmanageable horses are not accepted.

Unhogged manes and *undocked tails* are desired, especially in the case of chargers. Good horses with short manes and docks can be accepted.

Soundness. — No horse is accepted without passing a veterinary examination; and soundness in wind, eyes and limb is insisted on. Stale, upright and over-shooting joints, weak or curby hocks, brushing, dishing or untrue action, turned-in or turned-out toes and weak feet are absolute disqualifications.

Chargers, riding horses and *cobs* should be short-legged, short-backed, good-barrelled, with good rein and shoulders, of the hunter stamp, with substance and quality, action true and quite clear of the joints.

Draft horses should not be too big, but fit to carry a man driving postillion; active and able to gallop, deep, short-legged, well ribbed-up, with plenty of substance and quality; action true and quite clear of the joints. Very coarse horses and those with heavy rolling action are not accepted.

Note. — No horses will be purchased unless they have been handled and are reasonably quiet.

PART II

THE BREEDS OF CATTLE

Beef p. 201
- Shorthorn
- Polled Durham
- Hereford
- Aberdeen Angus
- Galloway
- Sussex

Dual-Purpose p. 313
- Red Polled
- Devon

Dairy p. 255
- Jersey
- Guernsey
- Holstein-Friesian
- Ayrshire
- Brown Swiss
- Dutch Belted
- French-Canadian

Lesser Known Cattle p. 322
- Kerry
- Dexter-Kerry
- West Highland
- Brahmin or Zebu
- Simmenthal
- Longhorn

PLATE VI. — Breed Types of Cattle.



SHORTHORN BULL.



SHORTHORN COW.

CHAPTER VIII

THE BEEF BREEDS OF CATTLE

THESE are quite uniform in the degree to which they all conform to the beef type. They are low set, of parallelogram form from the side, as the effect of their straight and parallel top and under lines, with square ends, rectangular from any other view owing to their width throughout, thickly fleshed, easily fatted and possessed of quality yet great scale. In consequence they mature early, fatten readily, dress a high percentage of their live weight and carry the maximum weight of their dressed carcasses in the region of the most desirable cuts; *i.e.*, rib, loin and round, which are of the highest quality.

SHORTHORN CATTLE. Plate VI. Fig. 35.

By *Herbert W Mumford*

231. Shorthorn cattle are a breed possessing both beef and dairy types. Registered and grade cattle of this breed are more numerous than the cattle of any other beef breed. They originated in the valley of the Tees river, in northeastern England, and first became prized by farmers in the shires of Durham, Northumberland, Lincoln and York. Largely from the localities in which they originated, Shorthorns were formerly called Teeswater cattle and Durhams. These names as referring to Shorthorns have now largely become obsolete.

232. Origin in England. — As has been said, the Shorthorn breed of cattle originated in northeastern England, and first became popular in the shires of Durham, Northumberland, Lincoln and York. From this somewhat restricted territory their popularity gradually extended throughout England and Scotland, until, early in the nineteenth century, they were by far the most popular race of cattle in the British Isles. Authorities differ somewhat as to the particular stock used in developing this breed. All agree, however, that the largest factor entering into their production was the native cattle of the northeastern section of England. That occasional crosses of Dutch bulls were used is probable.

233. Breeding by Colling Brothers. — Improvement began about 1750, although very little methodical or efficient work was accomplished prior to the cattle-breeding operations of Robert and Charles Colling, of Barmpton and Ketton Hall. By careful selection and inbreeding they succeeded in setting standards towards which contemporary breeders aimed. Charles Colling's first Shorthorn purchase was made in 1784. His herd was dispersed successfully in 1810. Robert Colling's herd was sold partly in 1818 and the remainder in 1820. While these two brothers operated their farms separately and maintained separate herds, their methods and accomplishments were similar. They were unusually fortunate in the purchase of that first great Shorthorn sire, Hubback (319). While this was an undersized bull, yellow-red in color, he proved a fortunate "nick" for the late-maturing, coarse cows so common in the early history of the breed. As breeders of the Durham Ox, The White Heifer that Traveled, Favorite (252) and Comet (155), these pioneer breeders established a reputation for breeding good

Shorthorns that has made an impression on every careful student of the early history of the breed.

234. Other English breeders. — Among others, the following breeders were identified with the early history of the breed: Sir William St. Quintin, Sir James Pennyman, and Messrs. Milbank, Sharter, Pickering, Stephenson, Wetherell, Maynard, Dobinson, Charge, Wright, Hutchinson, Snowden, Waistell, Richard and William Barker, Brown, Hall, Hill, Best, Watson, Baker, Thompson, Jackson, Smith, Jolly, Masterman, Wallace and Robertson.

Darlington was for years looked on as the center of Shorthorn interests, although, strange as it may seem, there is but little activity in breeding Shorthorns in that section at the present time.

235. Thomas Bates of Kirklevington. — Thomas Bates, who was destined to become such an important factor in the breeding of Shorthorn cattle, purchased his first stock in 1800. He had previously been a breeder of Kyloes or West Highland cattle. He was well prepared for the work he undertook, and established families of Shorthorns of such pronounced individuality and recognized excellence of pedigree that they were at one time by far the most popular strain of the breed. Prices were paid during "boom times" for Bates' Shorthorns that have never been approached by Shorthorns of other lines of breeding. Thomas Bates was a stickler for pedigree. He assumed that cattle bred along certain specified lines would produce, when mated, almost invariably certain desired results. The particular family or tribe which he developed most and favored most was the Duchess. Fabulous prices have been paid for representatives of this family. The highest recorded price, $40,600, was paid

for a cow of this family at the New York Mills sale of September 10, 1873.

Belvedere (1706) was one of the best bulls used by Bates, while the Duke of Northumberland (1940), the acknowledged champion bull of England in 1842, was undoubtedly the best bull ever produced at Kirklevington. Bates' aim in breeding was to produce a dual-purpose cow, and as a consequence he gave careful attention to preserving the milking qualities of his Shorthorns. There was a characteristic style and finish about Bates' Shorthorns that still clings to cattle containing a strong infusion of this blood. While cattle of Thomas Bates' breeding were frequently seen in the show-ring from 1838 to 1848, and wherever shown were unusually successful, he was personally very much opposed to training cattle for show. The Bates herd was dispersed in 1850, when prices were very low, and as a consequence the cattle did not bring what they were worth.

236. Breeding by the Booths. — The elder Booth was a contemporary of Thomas Bates. His first herd was established at Killerby in 1790. His especial aim was to breed an earlier-maturing beast that would be noted for its beef-producing rather than its milk-producing qualities. While Booth was very ready to admit that the Collings had greatly improved Shorthorns, he did not think, as many of the breeders of the time apparently thought, that it was necessary to buy the females composing his herd of them. Among his early purchases were five heifer calves from the herd of Mr. Broader of Fairholme. To mate with these heifers, Booth purchased the Robert Colling bred bull, Twin Brother to Ben (660), and one of his get. Some of the best of the Killerby and Warlaby cattle descended from this line of breeding and from the following tribes or families: Blossom, Bright Eyes, Isabella

and the Booth Red Roses. Another bull which was purchased of Robert Colling was Suworow (626), at the dispersion sale of the Ketton Hall herd in 1810. Booth purchased the bull Albion (14), which proved to be a most excellent sire. Most of his bulls were from the Collings' herds. Besides the families of Shorthorns mentioned, Thomas Booth was partial to the Strawberry and Bracelet tribes. In 1819, Thomas Booth gave up the Killerby farm and a part of his herd to his son John, and removed to his Warlaby farm, so prominent in Shorthorn history. To another son, Richard, who was on the Studley farm, he had also sold a number of his Shorthorns.

Other families of Shorthorns which should be associated with the Booth families are the Farewells, the Broughton, Dairy Maids or Moss Roses, Gaudy or Lady Betty sort, Mantilinis and Belindas.

Perhaps the three most famous show animals bred by Booth were Bracelet and Necklace, twin heifers, sired by Priam (2452) and Lady Fragrant. The twin cows mentioned proved excellent breeders. The most famous bull used by any of the Booths was Crown Prince (10087), "The bull of all Booth bulls," the one that was to Warlaby what Duke of Northumberland was to Kirklevington, and Champion of England was to Sittyton. Crown Prince was considered too valuable a stock-getter to be fitted for exhibition.

The Booth family is still interested in the breeding of Shorthorns and the operations of this family will always remain an interesting chapter in the history of Shorthorns. They were prominent in the leading live-stock shows of the country, and undoubtedly the breeding qualities of many of their best cattle were affected by high feeding for exhibition purposes.

237. History in the United States. — The first recorded importation of Shorthorns to the United States was that of Mr. Miller, of Virginia, and Mr. Gough, of Baltimore, Maryland. These gentlemen imported from Great Britain, in 1783, some cattle that were undoubtedly of the Shorthorn breed. In the years 1790 and 1795, it is thought that they brought in consignments of cattle of the same breed. In 1791 and 1796, Mr. Heaton brought several Shorthorns from England to the state of New York, which were lost among the common stock of the country. A Scotchman named Cox brought a Shorthorn bull and two cows to Rensselaer county, New York, in 1815. The first Kentucky importation was made in 1817, by Colonel Lewis Sanders, who purchased through an agent eight Shorthorns and four Longhorns. At about the same time, James Prentice, of Lexington, Kentucky, imported two good Shorthorn bulls.

Importations were brought to the state of Massachusetts in 1817 by Samuel Williams, and in 1818 by Cornelius Coolidge. In 1822, Williams sent over the roan yearling heifer Arabella, by North Star (460). The Arabellas were noted for being heavy milkers, and at one time constituted a large and valuable family. Other Massachusetts importations of an early date were made by Messrs. Lee, Orr, Monson, Coffin, Rotch and Silsby. From 1821 to 1828, several unimportant importations were made to New York, Pennsylvania and Maryland. In 1833, Walter Dunn, living near Lexington, Kentucky, imported six head of valuable Shorthorns. Another importation was made by Dunn in company with Samuel Smith in 1836.

238. Organization. — The year 1833 was important in Shorthorn history, for the organization of the Ohio Importing Company, "For the purpose of promoting the

interest of agriculture and introducing an improved breed of cattle." Felix Renick was chosen agent of this company to go to England to select cattle for the company. While it was not restricted to purchase all Shorthorns, it decided, after considerable investigation, to import only Shorthorns. Among the herds visited were those of Maynard, Booth, Bates, Whitaker, Althrope, Craddock, Raine and Paley. Seven bulls and twelve females were carefully selected for the first importation. In this lot were the two heifers, Rose of Sharon and Young Mary, which were destined to play such an important part in the history of Shorthorns in the United States. This importation was so satisfactory to the shareholders of the Ohio Importing Company that their agent was soon authorized to make arrangements for further importations. In 1835 and 1836, Whitaker, through Renick's authorization, sent out two shipments comprising forty-two animals to the Ohio Importing Company. Among these were Josephine, Young Phyllis, Illustrious and Harriet. In August, 1836, this company held a sale on Felix Renick's farm in Rose county, Ohio. Forty-three animals were sold at an average price of $803.25, or a total of $34,540. The final dispersion sale of the company was held in 1837, at which the fifteen animals averaged $1071.65. A number of importations were made to Ohio from 1836 to 1840. In 1839, the Kentucky Importing Company brought over a number of Shorthorns.

239. History since 1840. — From 1840 to 1850, agriculture in the United States was in a very depressed state, and the cattle industry, along with other farm interests, remained practically at a standstill. There was little demand for breeding cattle, which resulted in large numbers of Shorthorn breeding stock finding their way to

the shambles. In 1852, the Scioto Valley Importing Company was organized. This company, through its agents, George W. Renick and Arthur Watts, imported ten bulls and seventeen females, which were sold at auction at the very high average of $1351.85. This sale proved a stimulus to Shorthorn-cattle-breeding interests, and other importing companies were quickly organized, among which were the Madison County, Ohio, the Northern Kentucky, and the Scott County Importing Companies, the Clinton County, Ohio, and Clark County, Ohio, Associations.

In 1852 and 1853, A. J. Alexander of Kentucky, who was visiting in Great Britain, laid the foundation of the Woodburn herd of Shorthorns. The first shipment of cattle to the Alexander farm was made in 1853; subsequently other importations were made, which included Duchess Airdrie, Duchess Athol, Pearlette, Victoria 20th, Filigree, Lady Gulnare, Minna, Constance, Rosabella and other cows. Three of the leading bulls imported were Duke of Airdrie, Second Duke of Athol and Dr. Buckingham. At the Northern Kentucky and Scott County Companies' sales, Alexander made important purchases in the cows Mazurka, Maid of Melrose and Equity. The Woodburn herd took a prominent place in Shorthorn affairs and was at one time probably one of the largest and best Shorthorn herds in America, if not in the world. The Duke of Airdrie (12730) was used a year by George M. Bedford and to some extent by Abram Renick and Jere Duncan, as well as by Alexander. Bell Duke of Airdrie (2552), Duncan's Duke of Airdrie (2743) and Airdrie (2478) are considered among this great bull's most famous sons.

Among the most prominent breeders of Shorthorns in the United States at this early period should be men-

tioned Abram Renick of Kentucky. Perhaps the most far-reaching accomplishment of his efforts is to be found in the founding and bringing to a high degree of excellence that family that for many years attracted international attention, viz., the Rose of Sharon. The bull Airdrie 2478, already mentioned, was spoken of as one of medium size, very symmetrical, neat, smooth and stylish, and a remarkable sire of high-class bulls. This bull was used extensively in Mr. Renick's herd and sired, among other famous Shorthorns, the bull Sweepstakes (6230), Joe Johnson, Airdrie 3d (13320), Dick Taylor (5508), and Airdrie Duke (5306). It was with the get of Airdrie that Mr. Renick began his system of in-and-inbreeding, producing the Rose of Sharons that called forth the admiration and respect of the entire Shorthorn-breeding fraternity.

Even a brief history of Shorthorns should not omit the name of Warfield. Benjamin Warfield secured his first pure-bred Shorthorn in 1831. The first great sire in the herd was Renick (903). He was noted more as a sire than for his individual excellence. Benjamin Warfield was succeeded by his son, William Warfield, of Grasmere. One of the famous bulls used by Warfield was Muscatoon (7057). This bull proved to be not only an excellent show bull, but a sire of superior show animals. William Warfield originated the London Duchesses, by many persons thought to be one of the best tribes of Shorthorns evolved in America.

Several importations were made into the eastern part of the United States from 1830 to 1860. This stock was very largely of the Bates strains. Perhaps the most notable importations during this period were by Samuel Thorne, of Thorndale, New York. His first importation

was followed by others in 1854, 1855 and 1856. These constituted the highest-priced cattle that had thus far been brought to the United States. In 1857, Thorne purchased the Morris and Becar herd, consisting of fifty-three Shorthorns, at the reported price of $35,000.

While the principal importations were confined to Kentucky, Ohio and New York, Shorthorn activity was apparent elsewhere, notably in Illinois, Indiana, Michigan, Missouri and Iowa.

240. History in Canada. — In 1833, Roland Wingfield, near Toronto, imported two Shorthorn bulls and five cows from England. Other early importations were made by the Home District Agricultural Society, Adam Furgeson, George and John Simpson, William and George Miller and Frederick William Stone. It may be said, however, that the Shorthorns were not imported extensively to Canada until Scotch Shorthorns came into popularity. Messrs. George and William Miller, Simon Beattie, George Isaac and M. H. Cochrane were first responsible for Shorthorn activity in Canada.

The first Canadian to bring Scotch cattle into prominence in America was Joseph S. Thompson, Mayfield, Whitby, Canada. He imported the Champion of England heifers, Sylvia and Christobel, also Violet 4th. James I. Davidson, Balsam, Ontario, was also one of the early and most ardent supporters of the Scotch type in Shorthorns. He started his Shorthorn herd in 1860. From 1881 to 1887, practically all the stock from the Sittyton herd that was brought to the United States passed through the hands of Davidson. John Dryden, Brooklyn, Ontario, founded the Maple Shade farm herd of Shorthorns, in 1871. He imported that famous Champion of England cow, Mimulus, and other good ones representing the best

of the Sittyton blood. George Brown, of Bow Park farm, will go down in history as a prominent factor in Canadian Shorthorn activity. Among other Canadian breeders and importers were John M. Armstrong, Arthur Johnson, W. B. Telfar, W. Major, William Collum, Thomas Russell, Francis Green and George Whitfield.

241. Important events in Shorthorn history since 1860. — In 1869 and 1870, Messrs. Walcott and Campbell, of New York, imported Booth Shorthorns and the entire Sheldon herd of Duchesses and Oxfords. This was the beginning of the greatest boom in Bates cattle in the United States. In 1867, Colonel W. S. King, of Minneapolis, Minnesota, founded his important herd in the northwest. From 1860 to 1880, Shorthorns of Bates families were undoubtedly preëminently popular in the United States. In Canada, however, Scotch Shorthorns were gaining in popularity.

The first sale of cattle ever held in Dexter Park, Chicago, was in the year 1872. These were prosperous times for Shorthorn breeders. This prosperity extended into the next year and culminated in one of the greatest if not the greatest public sale of pedigreed cattle held in the world, namely, the New York Mills sale of Walcott and Campbell, September 10, 1873. This herd contained the only living Duchesses which were descended direct from the Bates herd without the admixture of blood from other sources. The sale was very largely attended by Shorthorn fanciers from Great Britain, Canada and the United States. At this sale the eighth Duchess of Geneva brought $40,600, and many others were sold at fabulous prices. Almost immediately following this sale there came a period of financial depression, and Shorthorn cattle gradually decreased in value for a few years.

242. Popularity of Scotch Shorthorns. — Undoubtedly the most notable feature of Shorthorn history from 1880 to the present time has been the growing popularity of Scotch Shorthorns. Of all the breeders of Scotch Shorthorns, Amos Cruickshank is looked on as the most famous. He was an Aberdeenshire tenant farmer, who thought that Shorthorns had been too much pampered for practical use on the tenant farms of Scotland, where climatic conditions made it necessary for the farmers to choose a hardy race of cattle. He was a lover of Shorthorns, and determined to develop a type that would meet the requirements of the farmers of Scotland. His ideal was a short-legged, broad, thick-fleshed beast, carrying a good middle; that is, a well-sprung rib and a thick, fleshy back and loin. He selected animals of this type with which to found his herd, and was so successful that his herd soon became recognized as the foremost one of Scotland. His brother, Anthony, was associated with him. Cruickshank got a very strong hold on Shorthorn breeders, that remains to this day. To such an extent is this true that one Shorthorn may be two to five times more valuable than another of equal individual merit, simply because it has a good Scotch pedigree and the other has not.

Among those who have helped to popularize Scotch Shorthorns in America may be mentioned Colonel W. A. Harris, of Linwood, Kansas, J. J. Hill, of St. Paul, Minnesota, and Colonel T. S. Moberly, of Richmond, Kentucky. Many other names might be added.

243. Description. — The general form of the Shorthorn is that of the beef type (Plate VI). The breed is characterized by width and depth of form, great scale and substance, and symmetry and style. It is the largest of the beef breeds. The head should be wide between the eyes,

short from the eyes to the nostrils, and while it should be neat and refined, it must indicate good feeding qualities. The horns are short and rather fine, should curve gracefully forward, and be waxy white in color, with dark tips. A "spike" horn is objectionable. The neck should be short and fine, and smoothly jointed to the head and shoulders. The shoulders are rather upright, and frequently inclined to be bare of flesh. The back should be straight, level and broad, and deeply covered with flesh. The strong feature in the make-up of the Shorthorn is the hind-quarter, which is said to be the best of any breed. The thighs are wide, deep and long, and well filled down in the twist. The line of the back of the thigh is nearly straight from the tail down, giving a characteristic squarely built appearance. As a rule, the body is deep, with a good heart and digestive capacity. The flanks should be well let down, making a nearly straight underline. The legs are medium length and of fine yet strong bone. The representatives of this breed have a great capacity for the production of flesh, and as they become fat there is a tendency to produce patches of fat about tail-head and rolls along the sides.

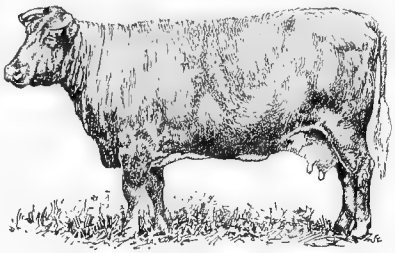


FIG. 35. — A typical dual-purpose Shorthorn cow.

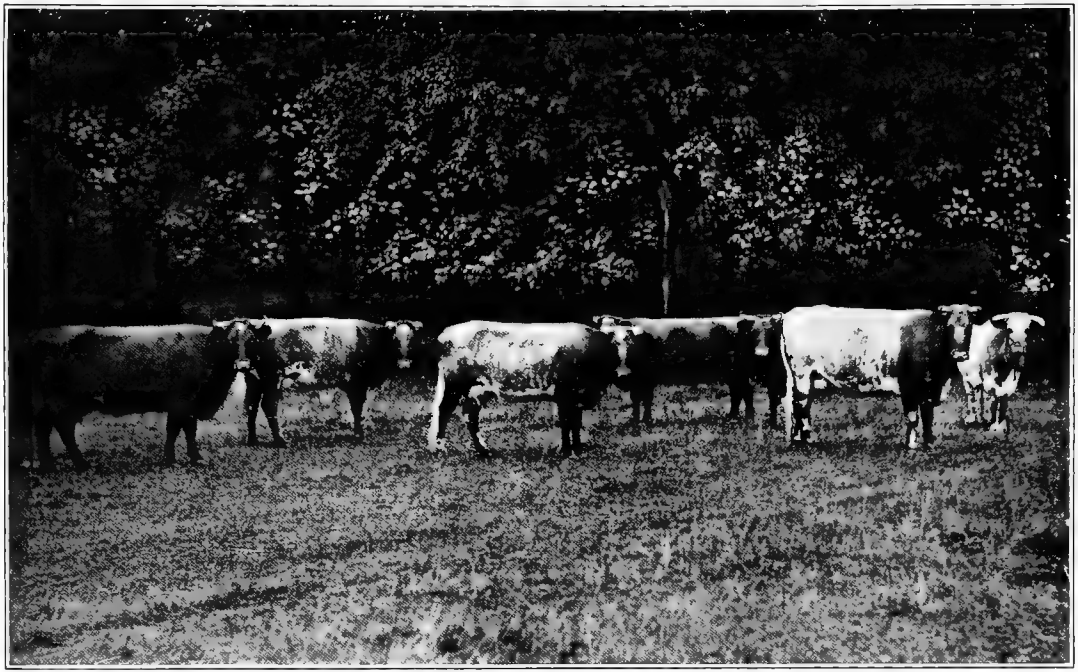
A criticism of the breed that has been made in the past is that Shorthorns were too long in the legs. There was probably just ground for this criticism in the old type of Shorthorn, but since the breed has received such an in-

fusion of the blood of the low-set, short-legged Scotch type, this tendency has been largely done away with.

The color of the Shorthorn is more variable than that of any other breed of cattle. It may be pure red, pure white, a mixture of these two colors, or roan. Roan is distinctively a Shorthorn color and may always be regarded as an indication of Shorthorn blood. Red and white were always characteristic colors of the old Shorthorn breed in England, but after their introduction into the United States, white became unpopular, especially on the western ranges, and anything except a solid red color was greatly discriminated against. The demand for red cattle became greater than the supply of good individuals, and sires of very ordinary character were used for no other reason than that they were red, while excellent individuals of the lighter colors were rejected. Good sense and sound judgment finally prevailed in the matter, and the red color craze has abated so that whites and roans have again come into popularity.

244. Uses for milk. — The Shorthorn ranks high in its dairy capacity. In England there have always been families or strains, notably those of Bates breeding, which have been noted for their milking capacity, and in England to-day the dairy qualities of the Shorthorn receive as much consideration as its beef-producing qualities. It is asserted that 90 per cent of the milk-supply of London is furnished by Shorthorns. In America, more attention has been paid to the beef side of the question, and the dairy qualities have been somewhat neglected, especially during the past craze for the thick-fleshed, blocky Scotch type, which were poor milkers. At present, however, more attention is being paid to the milking qualities in an effort to develop milking strains of Shorthorns (Plate VII).

PLATE VII. — Breed Types of Cattle. — Milking Shorthorns.



Major Henry E. Alvord, in Farmers' Bulletin No. 106, United States Department of Agriculture, gives some performances of Shorthorn herds and individuals as follows: "Records of several dairy herds in the United States, within a quarter of a century, show a milking season of about 275 days and an average product of 6500 pounds of milk. One herd of ten cows, three to twelve years old, averaged 7750 pounds in a year. Single cows have averaged much more, several instances being known of 10,000 to 12,000 pounds in a season. The Shorthorn milk is of good quality, rather above the average; the fat globules are of medium and fairly uniform size, so that cream separates easily; it is rather pale in color. In 1824, a cow near Philadelphia made over twenty pounds of butter in a week without special feeding. Herds of forty cows have averaged 209 pounds of butter in a year; the herd of ten cows mentioned above averaged 325 pounds, and single cows have records of 400 pounds and over, one being of 513 pounds."

245. Use for butter and cheese. — The Shorthorns made a very creditable showing in the butter tests against the dairy breeds, the Jerseys and Guernseys, at the World's Columbia Exposition at Chicago, in 1893. In the ninety-day butter test, the best Shorthorn cow, Nora, produced 3679.8 pounds of milk, from which was made 160.57 pounds of butter, and during the period she gained 115 pounds in weight. The best Jersey, Brown Bessie, produced 3634 pounds of milk, from which was made 216.66 pounds of butter, and gained 81 pounds. In this test the showing made by the Shorthorn was very good, considering the fact that not nearly so much care and money were spent in selecting the herd as was done with the Jerseys and Guernseys.

At the same time, the Shorthorn made a like creditable showing in a 14-day cheese-making test. In this, the Shorthorn ranked third against the Jersey and Guernsey, yielding 12186.9 pounds of milk, which made 1077.6 pounds of cheese. Nora, a Shorthorn, ran second to a Jersey, making 60.56 pounds of cheese at a net profit of $6.27.

246. Use for beef. — For the production of beef, the Shorthorn stands second to no breed, and there are very few that equal it. Its popularity as a beef breed both in England and the United States is shown by the number of its representatives found at the leading fat-stock shows of these two countries. The Shorthorn is naturally thick-fleshed, with a maximum development of the valuable parts of the carcass, which causes it to dress out a high percentage of carcass to live weight, although it is not so good in this respect as the Aberdeen-Angus. The Shorthorn is a good feeder, and, when supplied with an abundance of food, makes large gains, yielding good returns for the food consumed. The breed matures early and can be made ready for the block at two to two and one-half years of age; but, if so desired, it will stand a longer period of feeding. When forced for a long time, there is a tendency to take on flesh unevenly, with the fat in patches or rolls on the rump and along the sides.

247. Use for crossing and grading. — No other breed has been used for grading up common cattle to the extent that the Shorthorn has, and marked improvement has resulted wherever this method of grading has been followed, as may be seen by noting the improvement that has followed the use of Shorthorn bulls on our western ranges. In our American cattle markets, grade Shorthorns predominate over all other breeds in numbers.

The first cross of a Shorthorn on any of the beef breeds makes a good beef animal. The "prime Scots," which are so popular in the English markets, are crosses of the Shorthorn and Aberdeen-Angus. The "blue-gray" steers, which are also highly prized in the British markets, are crosses of the light-colored Shorthorns on the Galloway.

248. Distribution. — The Shorthorn is the most widely distributed breed of cattle. It is found in Europe, especially in Great Britain, in Asia, South Africa, Australia, North and South America. It is the most popular and most widely distributed beef breed of cattle in the United States and Canada, and is found in every state and province in these two countries. In the United States, Shorthorns are found most numerously in the following states, in order of their importance: Iowa, Missouri, Illinois, Ohio, Indiana, Kansas, Nebraska, Minnesota, Michigan. They are still growing in popularity.

One feature which adds greatly to the popularity of the Shorthorns is their great adaptability. They have the power to adapt themselves to varying conditions of food, climate and treatment. Although they are best adapted to temperate regions, they readily adjust themselves to greater extremes of temperature and climate. They possess a fair degree of hardiness, and do fairly well under range conditions. The Shorthorn was the first breed used for the improvement of the cattle on the ranges, and has been used extensively for this purpose in the United States, Argentina and Australia, but in recent years has been largely supplanted by the Hereford. Notwithstanding its value on the range, the Shorthorn is best adapted to a system of mixed farming, such as is followed in the Mississippi valley, where land is so valuable that a

cow cannot be kept for the calf alone, but must yield a profit in the dairy. George M. Rommel, in Bulletin No. 34, Bureau of Animal Industry, United States Department of Agriculture, states that, of the 150,000 registered Shorthorns estimated to be living in America, 5 per cent are found on the range, and the other 95 per cent are in the hands of the small farmer.

249. Organizations and records. — In 1822, George Coates, of Yorkshire, England, published the Shorthorn Herd-book, the first registry of live-stock to be issued. From this developed the English Shorthorn Herd-book (Coates' Herd-book), of which fifty volumes have now been published. Since 1876, it has been in the hands of the Shorthorn Society of the United Kingdom of Great Britain and Ireland.

The work of recording Shorthorns in America was first taken up by Lewis F. Allen, of Black Rock, New York, who published the first volume of the American Shorthorn Herd-book in 1846. Allen continued this publication as a private enterprise until 1882, when it was purchased by the American Shorthorn Breeders' Association. In 1869, A. J. Alexander, of Woodburn, Kentucky, published the first volume of a herd-book known as the American Shorthorn Record. In 1878, the Ohio Shorthorn Breeders' Association published the first volume of the Ohio Shorthorn Record, two more volumes of which were published later.

The registration of Shorthorns in the United States at present is conducted entirely by the American Shorthorn Breeders' Association, organized in 1882. This association purchased the interests of all the Shorthorn herd-books in the United States, and continued the publication, beginning with Volume 25 of the American

Shorthorn Herd-book started by Lewis F. Allen. Eighty-five volumes of this herd-book have been published, and Volumes 86 and 87 are now in preparation, two volumes being published annually. There have been registered 425,000 males and 620,000 females, making a total of 1,045,000.

The first Shorthorn herd-book in Canada was the Canadian Shorthorn Herd-book, the first volume of which was published in 1867. In 1881, the first volume of the British-American Shorthorn Herd-book was published, and the first volume of the Dominion Herd-book appeared in 1887. The latter took over the interests and records of the first two herd-books, and now the registration of Shorthorns in Canada is through the Dominion Herd-book.

Polled Durham Cattle

By *Herbert W. Mumford*

250. Polled Durhams, as a breed, have the unique distinction of being the only breed of cattle originating in the United States. They are very similar to the Shorthorn, and, in fact, the Shorthorn is chiefly responsible for their origin.

251. Breeders of note. — Among the early breeders interested in the development of the Polled Durham breed the following were most prominent: William W. Crane, Tippecanoe City, Ohio; W. S. Miller, Elmore, Ohio; J. F. and A. E. Burleigh, Mazon, Illinois; and Shafor and Clawson, Hamilton, Ohio.

252. Description. — Like the Shorthorn, the Polled Durham is massive in size, quiet in disposition, and a breed well calculated to meet the requirements of farmers

wanting a hornless race of dual-purpose cattle. They are, however, better fitted to give satisfaction as beef-producers than in the dairy. During the early history of the breed much attention was paid to color and milking qualities. Red was preferred, but in later years roans have come to be looked on with more favor. With the increase in numbers comes the opportunity to make more careful selections, and the breed is making rapid advancement both in real merit and public esteem. It possesses considerable prepotency.

Nearly all Polled Durhams that are being recorded at the present time are pure Shorthorn in blood, and breeders are striving to produce, as nearly as possible, the ideal Shorthorn, minus the horns. Polled Durhams are judged by the same standards as are Shorthorns, and in nearly all large shows Polled Durhams are judged by a Shorthorn breeder.

253. Standards. — There are two somewhat distinct lines of blood to be found among Polled Durhams. These are designated as Double-Standard and Single-Standard Polled Durhams.

Double-Standard Polled Durhams include the hornless Shorthorns that are eligible for record in the American Shorthorn Herd-book, as well as the American Polled Durham Herd-book. They are the result of retaining, as breeding animals, hornless Shorthorns, which occasionally appear as freaks in Shorthorn herds.[1] The most of the Double-Standard Polled Durhams are from the three families, White Rose, Young Phyllis and Gwynne.

Single-Standard Polled Durhams are eligible for record in the Polled Durham record only. This branch of Polled

[1] It is now known that the horned and polled characters are Mendelian, recessive and dominant respectively.

Durhams originated by the attempts on the part of a number of breeders, working, at first independently for the most part, to develop a race of hornless cattle with the characteristics of the Shorthorn breed. This was accomplished by the use of Shorthorn bulls on the native muley cows.

254. Distribution. — Herds of Polled Durhams are more numerous in Indiana, Iowa, Ohio and Illinois than in other states, although they are being introduced rather extensively into other sections of the country, notably in North Dakota, Kansas, Kentucky, Wisconsin, Texas and Nebraska. Several have been shipped to Argentina, in South America.

255. Organizations and records. — The American Polled Durham Breeders' Association, which has for its object the furthering of the interests of the breed, and the recording of animals eligible to its herd-book, was organized in Chicago, November 13, 1889, and was chartered November 2, 1890. Six volumes of the American Polled Durham Herd-book have been published, the first having appeared in 1894; over 27,000 animals have been registered. "Animals to be eligible to entry in the American Polled Durham Herd-book must be at least six months old; must be naturally hornless; must have both parents recorded therein or have one parent recorded in the book and the other parent recorded in the American Short-horn Herd-book; and further, must have all ancestry that are eligible recorded in the American Polled Durham Herd-book."

Literature. — A. H. Sanders, Shorthorn Cattle, Sanders Publishing Company, Chicago; Lewis F. Allen, History of Shorthorn Cattle; C. J. Bates, Thomas Bates and the Kirklevington Shorthorns, London (1897); W. H. Beaver, An Arithmetical Arrangement of the Leading Shorthorn Tribes; Thomas Bell, History of

Improved Shorthorn-Durham Cattle (1871); William Housman, The Improved Shorthorn, London (1876); Plumb, Little Sketches of Famous Beef Cattle, Columbus, Ohio (1904); herd-books of the various Shorthorn associations.

Hereford Cattle. Plate VIII. Figs. 36, 37.

By *Charles Gudgell*

256. The Hereford is a breed of cattle raised for the production of beef.

257. History in England. — The Hereford breed of cattle originated in the southwestern part of England, in a district the center of which is the county of Hereford. It doubtless had its foundation in the native cattle of that district in the same way that the other English breeds of domestic cattle had their origin. The name Hereford was at first used to designate the cattle generally of that district. These cattle were historically mentioned at a very early date (1627), as possessed of remarkably easy-keeping and fattening qualities. Later the term Hereford came to be used to designate the improved and pedigreed cattle that had been developed into a race with well-established breed characteristics that were reliably transmitted. Many of the early breeders had different objects or ideals in breeding, with the result that the Hereford cattle of that day had a great diversity of color as well as of physical features.

The colors that predominated among Hereford cattle at the time of the preparation of the first volume of the herd-book (about 1845) were varying shades of red on the body with white face, and the same with mottled or spotted face, and also varying degrees of roan or gray, as it was called, on the sides of the animal, with all the

other parts white. In the establishment of the improved and pedigreed Herefords, different breeders manifested a preference for animals of one or the other of these markings, and each zealously maintained the same during his breeding operations. The result of this was that, about 1845, there were several different strains of Hereford cattle that were distinguished mainly by their color markings, and were designated by the name of some prominent breeder, who had originated or was closely connected with the development of this particular strain. Subsequent breeders very wisely interbred these different strains or families, with the result that in a few years the breed became of a uniform color and markings, as at the present day.

The Hereford is among the oldest, if not the oldest established of the English breeds of domestic cattle. Some of its early improvers were contemporary, and some antecedent to the operations of Bakewell, who began his great work as a scientific breeder about 1755. As an evidence of the importance and advancement of the Hereford in production of beef at an early date, it may be cited that the prize for the champion steer over all-breeds at the first show of the Smithfield Club held at London in 1799 was won by a Hereford steer, and the same for several subsequent years. At a dispersion sale by auction of the breeding herd of one of the early improvers of the Hereford, held in 1819, the average of the sale was about $750 a head.

258. History in America. — Importations of a few head of Herefords were made to America in 1817, 1824 and 1840. The first two of these importations were unfortunate in that in one case the bull died, and in the other the cow died. The difficulties and risks attending the making of importations of cattle at that time were so great that

no attempt was made to keep up the race, and the result was that they became merged into other stocks and disappeared. The importation of 1840 was somewhat larger and more successful in that the cattle were maintained in their purity and pedigree records were kept. The descendants of this importation have continued to the present day and are registered in the American Hereford Record.

It was not until the Centennial Exposition at Philadelphia, in 1876, that the cattle-growers of the western part of the United States were attracted to the visible merits of this breed of cattle. A very attractive herd of the descendants of later importations was on exhibition on this occasion. To nearly all of the cattle-men of the West the Hereford was an unheard-of breed, and their uniformity, color and markings, together with their beef-carrying qualities, were revelations to them. As the cattle-growing interests were at that time assuming enormous proportions in the country west of the Missouri river, these visiting cattle-men were the more easily prevailed on to give the Herefords a trial under their system of production.

In the few succeeding years all the bulls obtainable of this breed were bought and shipped to different parts of the range country from Wyoming to Texas. It was then developed that the Hereford bull, when bred to range-bred cows, transmitted to his progeny his breed characteristics to a great degree, and ranchmen proceeded at once to make arrangements to introduce Hereford bulls into their herds. The popularity of the breed steadily grew and spread throughout the cattle-growing sections, and it soon became evident that they were impressing their characters on the improved range stock. This wave of popularity

has not been confined to the cattle-growers of the United States, but has overflowed the borders into Mexico and Canada and now bids fair to leave a similar impress on the beef-producing herds of those countries.

259. Merits of Herefords. — For some years the appreciation of the Herefords was based mainly on their ability to withstand hardships and produce beef on grass and under the rigorous conditions of the range. Later, when the conditions on the ranges had changed somewhat, the range-raised grade Hereford steers found their way into the feed-lots of the corn-growing states, where they gave an even better account of themselves in the matter of quick-feeding, economy of production, and quality of product when finished, than they did on the ranges. At first only steers two years old and over were admitted to the feed-lots, but later high-grade steer calves of this breed were taken directly from the range into the feed-lots. This opened up a new field in the production of high-class beef. The experiments in full-feeding high-grade calves were so satisfactory that a great demand for this class of feeding cattle has resulted. The calves are taken from their mothers on the range at weaning age in the fall and are shipped directly to the feed-lots, where they are full-fed and grazed for about twelve months. Then, as yearlings, they go to market weighing 1000 to 1200 pounds, where they are known as "baby beef," a product that is not produced so successfully and profitably from the grades of any other breed of cattle as from the Hereford.

At the time that Hereford bulls were introduced on the ranches, herds of pure-bred Herefords in America were few in number and small in size, so that they were unable more than partially to supply this demand, with the result that Hereford bulls were high in price. This

awakened a lively interest in the breed, such as had not been experienced, and a number of new herds were established. To supply the demand for bulls, importations of breeding herds were made from England in such numbers and in such rapid succession in the years 1880 to 1886, that it looked as though the registered stock which was limited to the place of their origin, would become exhausted. During this period several thousand head were imported and many new herds were established, mainly in the cattle-feeding states. Herefords were exhibited at all the leading fairs. A fat-stock show was inaugurated at Chicago in 1879, and a few years later another at Kansas City, Missouri. Steers were secured from the available supply and exhibited with remarkable success. While the Herefords were able to secure a goodly share of the prizes in the older classes and in the champion rings at these fat-stock shows, yet it was soon observed that they were nearly always successful in the younger classes.

Owing to the shortness of the legs, and general roundness of body of the Herefords, they are frequently misjudged as to their weight, and are generally thought to be smaller in size than some of the other beef breeds of cattle. A comparison of the official weights of the prize-winners in the classes for Herefords and Shorthorns at the now American Royal Live-Stock Show at Kansas City, Missouri, showed practically no difference in the average weights of the prize-winners in the classes for bulls and cows two years old and over. But in the classes for calves and yearlings, the average weights were always decidedly in favor of the Herefords.

Although in the importations of breeding Herefords that were made in the year 1880 to 1886, all the animals

PLATE VIII. — Breed Types of Cattle.



Head of Hereford Bull.



Head of Aberdeen-Angus Bull.

imported were not high-class specimens, there were among them many of the very best cattle both individually and in breeding to be had in England. From individuals of these importations have been developed families or strains that have become very popular. On the foundation of these importations the American breeder has made a very great improvement in the conformation of the Hereford.

260. Description. — The most distinctive feature of the Hereford to the ordinary observer is his color markings, or the distribution over the body of the red and white colors. The head, including jaws and throat, is white, with white under the neck, down the breast, under the belly and more or less on the legs. The bush of the tail is also white, and there is a white strip on the top of the neck from about the middle thereof to the top of the shoulders. The body, sides of the neck, and usually some parts of the legs, are red. The red in different animals varies from very light or yellow-red, as it is termed, to very dark red. An animal is classed in point of color as a light red, a medium red or a dark red. The foregoing is the popular distribution of the colors of the Hereford, yet there is sometimes a considerable variation therefrom in different animals. While as a breed of cattle they are very uniform in conformation and color markings, yet they do not by any means have the same degree of uniformity as the self-colored undomesticated animals.

The head of the Hereford (Plate VIII) is short, with broad forehead; the eyes are full and not sunken; the horns are usually rather strong and of a whitish yellow color, free from black tips, in the best types, and come forward with a more or less drooping tendency; the neck is short and thick, merging smoothly into the shoulders, free from surplus skin in the under parts;

the hide is heavy, loose and very pliable, and covered with a dense, soft coat of hair. The body of a well-fattened Hereford should be free from any paunchiness. The breast should be broad and full, but free from loose dewlap, the shoulders smoothly laid and broad on top, but not too open between the blades. The crops should be wide, the ribs well sprung and extending well backward, the loin broad and of good length, the hook bones by no means prominent, but down within the lines of the ribs, the tail-head on a line with the level of the back, and the rump-bones wide apart and well up, so as not to present a drooping appearance. The legs should be short, straight, strong in bone and set well apart. The line of the back should be practically straight and level from top of shoulders to the tail-head. The quarters should be full and well rounded, and the outlines of the animal, when viewed from the side, should present a somewhat box-like appearance, and from the end more that of a barrel (Figs. 36, 37).

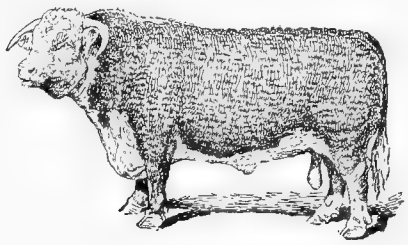


FIG. 36.— Hereford bull.

The Hereford has great length and thickness of loin, and all the bones of his frame are so well covered that they can scarcely be felt through the thick covering of flesh. Along his back from shoulder to rump his spine is so deeply buried in flesh that the vertebræ are not perceptible to the touch except at the small indentations, commonly called ties, near the middle of the back. These ties, usually one to three in number, are the attachments of

the skin to a few of the forward lumbar vertebræ, and are common to all cattle. The indentations are caused by the uplifting of the skin surrounding the tie by a great deposit of flesh along the spinal column. When of a pronounced character, these ties are not looked on with much favor by the breeders of fancy Herefords, as they detract somewhat from the smooth, rounded appearance of the body, although they are a very reliable indication of the great depth of flesh that covers the frame of the animal. Breeders sometimes loosen these ties in animals they are fitting for exhibition by a slight surgical operation, that is not very difficult of execution, whereby the depression in the skin disappears and leaves the back perfectly smooth and even.

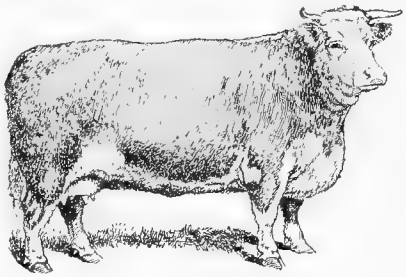


Fig. 37. — Hereford cow.

The coat of hair of the Hereford is regarded by the breeders as a feature of much importance. The preference is that it should be long, soft and curly, as indicative of a certain degree of quality in the animal. Such coats are regarded as furnishing some protection against cold in winter and, in some animals, a protection against flies in summer. At the great fairs and other shows, much care is taken by the Hereford exhibitors to have the coats of their animals properly cleaned and manipulated, so as to present a curly appearance and set off the form of the animal to the best advantage.

The most valuable characteristic of the Hereford is his disposition to accumulate flesh at all ages. The Hereford

is almost universally credited with being a superior rustler under range conditions. His ability to withstand rigorous conditions is due mostly to his capacity and diligence in laying up stores of flesh during the season of plenty on which he may draw in a season of want. The superior fleshing disposition of the Hereford has been demonstrated many times in the feed-lots of the corn-belt, where large numbers of the grades of all breeds are collected and fed for market under like conditions, and the Herefords are the first to be shipped to the market.

261. Uses. — This breed makes no claim to milk-production, and no efforts have been made in America to develop this faculty.

Hereford cattle are primarily beef animals, and in this capacity they stand in the first rank. They are especially valuable for the production of "baby beef." In the matter of early maturity, they are unexcelled.

262. Feeding. — The strong point with the Hereford in the production of beef is his ability to grow and develop on grass alone. He was developed in a great grazing district, and his first reputation was based on his capacity for converting grass into beef. While he surpasses other breeds as a grazier, he is equally prominent in the feed-lot. All cattle feeds are acceptable to him, and he responds as promptly as any to a ration of grain.

263. Distribution. — The Hereford has been introduced and used extensively in most parts of the world where attempts have been made to improve the cattle grown mainly for beef purposes. They were in use in considerable numbers in Australia and New Zealand some years before they were brought to America to any extent. Large herds of registered Herefords are now established in these countries, and a herd-book society has been organized that

publishes a registry for the breed in that section. Some years ago an importation of Herefords was made from Australia to California for the foundation of a herd in that state. The Herefords have been taken to several of the South American countries, mainly to Argentina and Uruguay.

In recent years some Herefords have been taken to Cuba and Porto Rico, to some of the Central American states and to the Sandwich islands, where they are reported as doing extremely well. The breed is preëminently adapted to the range, with its vicissitudes of cold and scant vegetation. For this reason, in the United States they are found mainly west of the Mississippi, although herds are maintained in New England. It has already been said that the breed has made its way into Canada and Mexico.

264. Organizations and records. — The first organization of the breeders of Hereford cattle in America was the Breeders' Live-Stock Association, organized in 1878, at Beecher, Illinois. It undertook the publication of a monthly periodical called the Breeders' Journal, which was devoted mainly to presenting the merits of Hereford cattle. At the same time it inaugurated a herd-book — the American Hereford Record, of which Volume I appeared in 1880, and Volume II in 1882. In 1883, it disbanded, having sold its interest in this Record to the American Hereford Cattle Breeders' Association, which was organized at Chicago, in June, 1881, and was incorporated under the laws of Illinois in 1883. At the second meeting of this Association, in November, 1881, the total enrollment of breeders as members numbered thirty-four. In 1883, it purchased the copyright and unsold copies of Volumes I and II of the American Hereford Record.

It continued the publication of the herd-books, and forty volumes have been published to date. There are now over 6300 members in the Association.

The entry numbers in the American Hereford Record at the time of its purchase by its present owners were a little over 6000. These numbers were assigned to both male and females entries, and were very largely of ancestors of cattle owned in America. At the present time the number of entries is over 500,000. The rules do not require an entry to be made until the animal is nearly two years old, although the application for entrance must be filed with the office before the animal is six months old. The office of the American Hereford Cattle Breeders' Association is in Kansas City, Missouri.

The Hereford Herd-book of England appeared in 1846. The Hereford Herd-book Society of England was organized in 1878, since which time it has been responsible for the publication of the herd-book. A herd-book society has been organized and a registry published for the Hereford breeders of Australia and New Zealand. Herd-books have also been established for the breed in Argentina and Uruguay.

265. Double-Standard Polled Herefords. — Since the introduction into the United States of the polled breeds of cattle from Scotland, the hornless feature in cattle has found favor with some of the breeders and admirers of the Hereford. The fact that Hereford feeding steers that have been artificially made polled or dehorned are so much preferred in the feed-lots to those that are horned has led a few breeders to undertake to establish a strain of registered Herefords that are naturally polled or hornless. This has been accomplished in the case of the Shorthorn breed of cattle, and is in a fair way to be realized in the

Hereford. However desirable the hornless feature may or may not be (there is a great difference of opinion among breeders on this subject), the elimination of the horns from the Hereford by a natural process has been no easy undertaking. Of the more than 240,000 registered Herefords that have been bred in this country in the past quarter of a century, a very few, possibly less than twenty head from horned sire and dam, have been naturally polled.

The great rarity of sports of this kind among the Herefords has made the establishment of a strain of registered Polled Herefords a slow and difficult undertaking. However, several breeders are now devoting themselves to this work with considerable enthusiasm and some degree of success. At the present time there are about one hundred head of all ages of naturally Polled Herefords that are registered in the American Hereford Record. These Polled Herefords are denominated by their breeders Double-Standard Polled Herefords, to distinguish them from a class of polled cattle that are registered in the herdbook for Polled Herefords exclusively, but are not eligible to record in the American Hereford Record.

The difficulties that the breeders of Polled Herefords have encountered are two-fold. In the first place, the scarcity of material to work on has necessitated very close breeding, in order to preserve the hornless feature. In the second place, those hornless sports were unfortunately not high-class either individually or in breeding, so that in strengthening the desired hornless feature by close breeding, the breeders at the same time were fixing in their cattle some undesirable features in other respects. By careful breeding and feeding, these difficulties will be overcome in time, but it will take a much longer time under the conditions that prevail to establish a strain of Here-

fords that will be popular because of their meritorious qualities other than the polled condition.

Two associations of the breeders of Polled Herefords have been organized, one of which is called the American Polled Hereford Cattle Club, with the office of its secretary at Des Moines, Iowa. The other organization is called the National Polled Hereford Breeders' Association, and has its office in Chicago, Illinois. Both of these small organizations have begun the preparation of herd-books for Polled Herefords, accepting for registration the double-standard variety of Polled Herefords, and also other naturally Polled Herefords that are not eligible to registry in the American Hereford Record.

Literature. — In England there is a History of Hereford Cattle, by Macdonald and Sinclair (1886), that is very valuable, as treating of this breed in its native home. An excellent history of Hereford Cattle by Alvin H. Sanders has just been published by the Breeders' Gazette of Chicago.

Aberdeen-Angus Cattle. Plate VIII. Figs. 38, 39.

By *John S. Goodwin*

266. The Aberdeen-Angus is a breed of cattle maintained primarily for beef-production. It is a hornless or muley type.

267. Origin. — Hornless cattle have existed for many centuries. Disregarding the uncertain, although probable, references of four to five thousand years ago, such cattle are definitely mentioned by Tacitus, the Roman historian. Herds of hornless cattle, at different times, have come into existence in various parts of the world. One of the largest of these is found in South America; another has grown up

in Austria, and, within the last few years, hornless cattle have been developed among the well-established horned breeds, such as the Hereford, Jersey and Shorthorn, with which the wearing of horns seemed to be a fixed trait. Many words have been used to express this hornless condition in cattle, and they are known variously as humblies (humlies), muleys, doddies, hornless and polled. The latter term has become most generally in use to designate the Scotch hornless cattle. All of these words simply mean "lacking horns."

268. History in Scotland. — In Scotland, two breeds of such cattle have existed so long that history does not record their origins. These are the Galloway, whose habitat is the southwestern coast of Scotland, and the Aberdeen-Angus, which had its origin in the northeastern part of Scotland. It is somewhat difficult to describe these breeds so that representatives of each may be readily distinguished; both are hornless, both black and both come from Scotland. Generally speaking, the Galloways are much longer-haired, larger-boned, more square-framed and somewhat slower-maturing, while the Aberdeen-Angus are sleek-haired, small-boned, round in the barrel and hind-quarters and early-maturing.

The earliest attempt to improve the polled cattle of the northeast of Scotland began in Angusshire, which is now a part of Forfarshire, and was undertaken by the late Hugh Watson of Keillor. His ancestors had been breeding these cattle on the Keillor farm for more than two hundred years when Hugh Watson began in 1805. Not many years later, cattle-breeders in Aberdeenshire began improving the same kind of cattle, and a considerable rivalry sprang up between the different localities. According to the location, the cattle were known as the Angus Doddies

and as Buchan Humblies, and yet again as Polled Aberdeens. The word polled was used to indicate the hornless Aberdeenshire cattle and thus to distinguish them from another breed, now almost extinct, which inhabited the same shire and had horns.

At a still later time the breeders of these hornless cattle in the various parts of northeastern Scotland came together, and, deciding that the cattle were all of one breed, proceeded to choose a suitable name. To please the partisans of the two districts in which most of these cattle were then to be found, the name adopted was Polled Aberdeen-or-Angus cattle. This name became shortened by dropping out the word " or " and putting a hyphen in its place.

It has been further abbreviated, because of the passing of the horned breed, to Aberdeen-Angus, the word polled being now deemed unnecessary. This idea has been adopted also by the Polled Galloway breeders, so that their breed is now known as Galloway cattle. Both in Scotland and America, even the name of Aberdeen-Angus has been shortened, and in Scotland the cattle are generally referred to as the Polled cattle, while in America they are called the Angus cattle.

These Aberdeen-Angus cattle have been great favorites in Scotland for more than a century, but unfortunately on two occasions diseases attacked the cattle in that country and decimated the herds. Later, when the government had stamped out these diseases, the cattle again began multiplying, and soon assumed an important place among the domestic animals of the kingdom. The World's Fair held at Paris, France, in 1878, gave the breed an opportunity to demonstrate its great merit, and, with only fifteen representatives, it won the champion-herd

prize against nearly two thousand other cattle of various breeds shown in competition, every animal of the Aberdeen-Angus breed receiving either a prize or an honorable mention. About this time the breed was introduced into England, and a little later into Ireland.

269. History in America. — The Paris successes led some of the former breeders of these cattle, then in America, to bring over a few of their early favorites in 1878, and from that time this breed of cattle has grown rapidly in public favor until it is now recognized as one of the principal beef breeds of this country. In 1872, two bulls were sent to western Kansas, but no females accompanied that importation. It was the marketing of the steers from these two animals that first attracted attention to this breed in Kansas City. Other importations were made as follows: In 1876, two bulls and a cow, by the Ontario Agricultural College; in 1878, one bull and five cows, by Anderson & Findlay, Lake Forest, Illinois; in 1879, by F. B. Redfield, Batavia, New York; in 1880, by George Whitfield, Rougemont, Province of Quebec. Since that time many importations have been made.

The lack of horns was such an unusual condition that it excited much comment and not a little opposition. When breeders and feeders began to consider this feature, its decided advantage so appealed to them that a perfect furor of dehorning swept over the country. Horns were sawed off from aged animals, and horn-cores were gouged out or burnt off of calves, until dehorned market cattle became the rule instead of the exception. The Aberdeen-Angus bull has become a prime favorite as a dehorner. Crossed with the ordinary native cow, about 90 to 95 per cent of the offspring are black in color and hornless,

although occasionally scurs appear, which, however, are no detriment from the feeder's point of view.

The Aberdeen-Angus cattle rapidly rose in public favor. Sales were held at various points, and the cattle were scattered over a large territory. Perhaps there is no other instance in which a new and practically unknown breed has sprung at once into such prominence and has maintained so high a position.

270. Description. — Aberdeen-Angus cattle are distinguished by the following breed characteristics (Figs. 38, 39): black color, polled heads (Plate VIII), rotund compact type, smoothness of conformation, short legs, evenness of flesh when fat, and deep, full hind-quarters. They are uniform in type, take on flesh evenly, dress a large percentage of high-class beef, and, as a rule, reach in the hands of experienced feeders a degree of primeness rarely equaled. The marbling of their flesh, *i.e.*, its proportion and blending of lean meat and fat, is also a characteristic. In slaughter tests they have been uniformly successful in competition with other cattle, their fineness of bone and high percentage of muscle or lean meat giving them dressing scores which average above those of competitors. In hardiness and prolificacy they do not differ materially from other breeds. The females, usually good average milkers, are always capable of raising their own offspring.

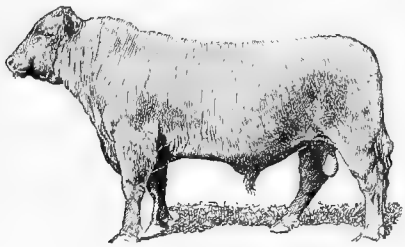


FIG. 38. — Aberdeen-Angus bull.

In the early days of the breed there was not so much

attention paid to what is now known as the fine points, but all of the care was directed to the individual merit. Color was a secondary consideration, and, while the great majority of the cattle were black, yet many good ones were marked with a dun-colored stripe down the back, while others were brindled, and still others were black and white, and not infrequently calves came of a peculiar pale red color caused by the absence of the black pigment, which is a characteristic of the breed. It was Hugh Watson of Keillor who first determined on the desirability of a uniform color in the breed, and who declared himself for the "Black and all black; the Angus Doddie, and no Surrender!"

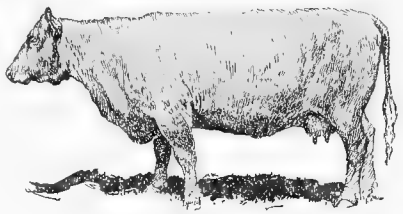


FIG. 39. — Aberdeen-Angus cow.

Not so much care was exercised then as now in the choice of the sires, and in some cases animals were used that had rudimentary horns called scurs. These are small horn-like excrescences, that are not attached to the skull, and have no horn core. This condition is not considered to represent any impurity of the blood, but simply is a harking back to a time when the progenitors of these cattle were horned. Scurs are extremely objectionable from the present standpoint, and males so marked are debarred from registration. The fashion in color also demands that no white should appear above the under-line, but a white udder is said to be an indication of a good milch cow. The demand for solid black color is carried, perhaps, beyond the proper point. There have been a number of attempts to get together the red-colored females and to

establish that color, but with only limited success, the offspring born of red parents coming true too frequently to the characteristic black color.

271. Uses of Aberdeen-Angus cattle. — The breed has not been developed particularly for milk-production, but in some herds attention has been given to this quality with the result that, more particularly in New Zealand, entire dairies are now composed of Aberdeen-Angus cows; and in 1895, an Aberdeen-Angus cow was the champion at the Dairy Show held in London.

The cattle and their grades are more especially noted for the wealth of flesh carried on very short legs, and are easy keepers and early maturing. For twenty years this breed uniformly topped the Chicago market each year with one exception, and in that year the Pittsburgh market paid a higher price than any other, and the Aberdeen-Angus topped that market. Their winnings in the International Live-stock Exposition are matters of current history, and they have never failed of representation among the prize-winners, both as single animals and in carload lots.

For crossing or grading, the Aberdeen-Angus is in the front rank. On common stock, the bulls get market cattle of high merit. As dehorners, the bulls of this breed are unexcelled. A wider use of these bulls in grading would be beneficial.

272. Distribution. — Cattle of this breed are found in Scotland, England, Ireland, Germany, France, Denmark, Sandwich Islands, New Zealand, South America, Canada and the United States. In America, the breed is represented in not less than forty-two states and territories. Especially adapted to the rich prairie lands of the Middle West, Aberdeen-Angus cattle for years have been most

numerous in the states of Iowa, Illinois, Missouri, Indiana, Kansas, Ohio and Nebraska, in the order given. However, they are widely distributed, and in recent years have increased substantially in popular favor in the South, Southwest, West and Northwest. Preëminently a feeder's beast, the Aberdeen-Angus not only is highly prized by beef-producers in the corn-belt, but graziers and ranchmen of the plains region of the West, Southwest and Northwest find it a profitable breed for their conditions. It is in the surplus corn states, however, that Aberdeen-Angus cattle appear to reach their highest excellence.

273. Organizations and records. — The two leading organizations concerned with the advancement of the interests of Aberdeen-Angus cattle are the Polled Cattle Society of Scotland, organized in 1879, and the American Aberdeen-Angus Breeders' Association, organized in 1883, with headquarters in the Live-Stock Record Building, Chicago. Thirty-eight volumes of the Polled Cattle Herd-book have been issued since 1862. When the Polled Cattle Herd-book was first established in Scotland, Galloway cattle were recorded in it as well (in first four volumes), but all animals of that breed were designated by an asterisk placed in front of their names, and no animals were accepted that were a cross between the Aberdeen-Angus and the Galloway, but both breeds were kept distinct. Since 1886, the American association has published twenty-four volumes of its herd-book. Over 197,000 Aberdeen-Angus cattle have been registered in the American herd-book, but of course a considerable proportion of these were the foundation animals whose pedigrees were taken from the Scotch herd-book; about 15 per cent of the annual produce of pure-bred herds is not recorded. There are now about 3200 members in the American association.

There are also several state organizations, as the Indiana, Iowa and Nebraska Aberdeen-Angus Breeders' Associations. These have memberships of seventy-five to one hundred and fifty persons, hold regular annual meetings, appropriate money for special prizes at the state fairs, and in other ways seek to promote the interests of the breed.

Literature. — Aberdeen-Angus, The Breed that Beats the Record, Detroit (1886); James Macdonald and James Sinclair, History of Polled Aberdeen or Angus Cattle, Edinburgh (1882); A History of the Heatherton Herd, Chicago (1907).

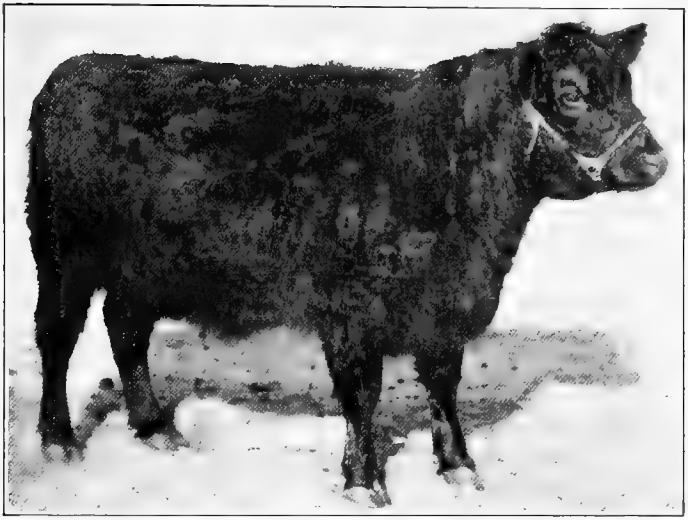
Galloway Cattle. Plate IX. Figs. 40, 41.

By *Charles Gray*

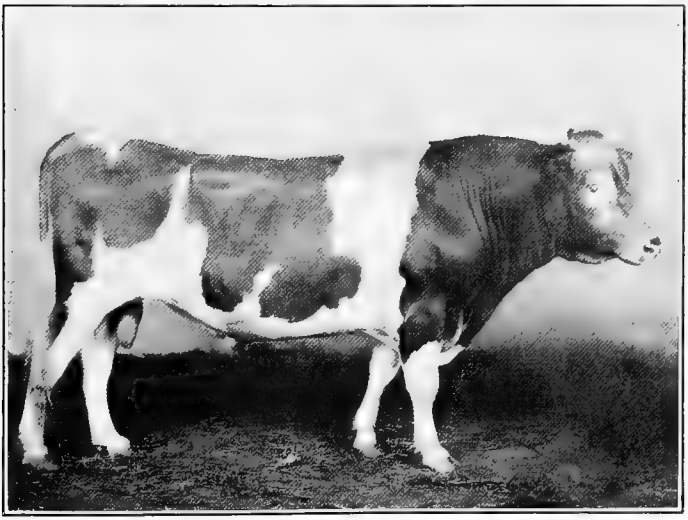
274. The Galloway is a breed of beef cattle which derives its name from the province of Galloway, Scotland. Galloway now embraces only the Stewartry of Kirkcudbright and the shire of Wigton, the two southwest counties of Scotland, but formerly comprised the six counties lying south of the Firth of Forth.

275. History in Scotland. — The origin of the Galloway cattle is lost in the mists of antiquity. When the Romans first visited Britain the country was covered with dense forests. In these forests the Romans found many wild cattle roaming at their will, and it is now conceded that they were the progenitors of our modern breed of Galloways. Cattle-breeding has been the principal business among Galloway farmers since earliest times of which we have record. A history of Scotland alluding to the time prior to and including the reign of Alexander III (1249) says: "Black cattle were reared in great numbers

PLATE IX. — Breed Types of Cattle.



Galloway Heifer.



Guernsey Bull.

during the Scoto-Saxon period." George Buchanan, tutor to James I, of England, writing about 1566, says of Galloway: "It is more fruitful in cattle than in corn."

The breed was of great importance during the Scoto-Saxon period. In the early ages dairying was an object of considerable attention. Large quantities of cheese were made and the people consumed much animal flesh. There was also an extensive export trade in hides. At a later period, immediately after the union of England and Scotland, the farmers of England became extensive purchasers of Galloway cattle. During this activity the Galloways found much favor among the graziers of the south of England and the butchers of Smithfield market, and they invariably sold at an average price £2 a head above that of any other breed of the same weight. The breed was much improved during this period as well as later when turnip husbandry was introduced into the province of Galloway. A circumstance worthy of attention is that the breed has never been affected by crossing with any other breed. The improvement has been brought about entirely by the diligent attention and careful management of the breeders of Galloway and of the corn-belt of America.

Although the Galloway is the oldest of the pure breeds of Britain, there has been very little written about the breed, and the records that were collected during the early part of the last century were destroyed by fire in the Highland and Agricultural Society's Museum and Records in Edinburgh in 1851. Some time later, about the year 1862, a book of pedigrees was compiled, which contained pedigrees of both Aberdeen-Angus and Galloways. Still a little later, about the year 1878, the

Galloway Cattle Society of Great Britain, with the able assistance of the secretary, Rev. John Gillispie, of Dumfriesshire, Scotland, published the first book of Galloway pedigrees which is recognized by Galloway associations at present.

276. History in America. — The breed was formally introduced into America by an importation made by Graham Brothers, Ontario, Canada, in 1853, although it has been said that one or two individuals were seen in this country before that time. The cattle of the first importation adapted themselves so readily to Canadian conditions that many large shipments quickly followed, until now the hornless, shaggy blacks are found in all the provinces of Canada and nearly every state in the Union. The breed made its way into the United States slowly at first. A few head were brought into Michigan in 1870, and from there spread into other central and western states.

277. Description. — The typical modern Galloway is a low, blocky animal, with a long, soft, shaggy coat of black hair, hornless, well sprung in the ribs, the whole make-up resembling a barrel in shape, which is evenly covered with juicy, lean flesh. (Figs. 40, 41. Plate IX.) The Galloways have been hornless from time immemorial. Some writers mention a tradition to the effect that in remote ages they were provided with horns; however, notices of the breed centuries ago invariably state that Galloways were hornless. If any so-called

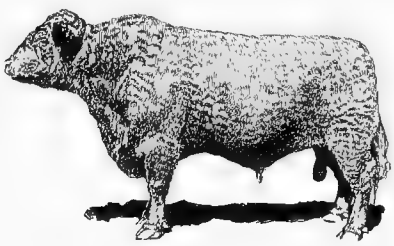


FIG. 40 — Galloway bull.

Galloway presents the slightest appearance of horns, he should be rejected as impure.

278. Use for milk. — The Galloways, as a breed, cannot lay claim to any superiority as milkers. Although many herds have been kept for centuries in the south of Scotland for dairy purposes, yet, as a whole, the breed has been improved chiefly along the lines of beef-production. Some breeders in Scotland have developed the milking faculty of their herds to a very high degree by systematically disposing of cows that proved shy milkers. It is not an uncommon thing in the corn-belt of this country to find Galloway cows that produce large quantities of milk. Some of the most noted show-cows exhibited in recent years gave large quantities of very rich milk during their milking season. The United States Government recently purchased a number of animals of the milking strains and sent them to Alaska for dairy purposes. Many favorable reports have been received from Alaska since these hardy blacks arrived at their new home. They seem to be as well adapted to the rigors of the northern climate as they are to the inclement weather found among the rugged hills and fertile glens of their native land in southwestern Scotland.

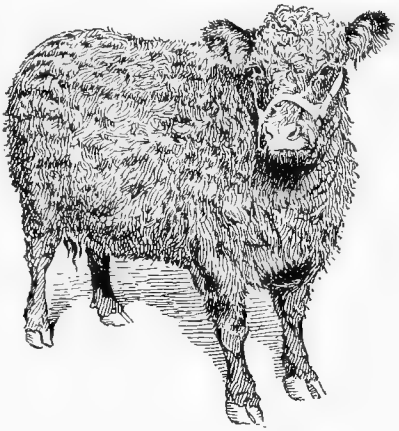


FIG. 41. — Galloway cow.

279. Use for beef. — It is chiefly as a beef-producing breed that the Galloways are famous. The quality of their beef attracted much attention in the British markets centuries ago, and they had the distinction of being classed as "prime scots" at Smithfield long before these cattle were known to the feeders of the corn-belt or the cow-men of the western plains. The superiority of the Galloway beef arises from the fact that it is always well marbled and possesses a large proportion of lean meat intermixed with fat. The packers and butchers have been striving to educate breeders, stockmen and farmers to breed animals with a greater proportion of natural flesh and less wasteful fat. The Galloway has long been bred with this essential feature in view, and thus he leads his rivals in this respect, and brings higher returns per hundred pounds live weight.

This breed has been vastly improved since its introduction into the corn-belt. Greater weights have been secured in shorter time than was customary twenty-five years ago, and the early-maturing feature has been much in evidence. In the past, the statement has been advanced by some persons that one could not mature the Galloways so soon as individuals of other beef breeds. One need only visit some of the leading Galloway herds throughout the country, or review the various ages and classes of individuals presented every year at the national shows, to be convinced of the error of this statement. Experienced authorities who have handled two or more of the leading beef breeds under similar conditions maintain that the Galloways mature at any age just about as readily as individuals of any other beef breed. To-day, the Galloways have many claims to favoritism. Experiments at various agricultural experiment stations show that while

they do not attain so great size as some of the other beef breeds, yet they are more economical feeders, especially where a large proportion of roughage has to be consumed. When the numbers of each breed are considered, the Galloways top the market at the great live-stock centers as often as any other breed. The killing qualities are in their favor because, as a rule, the Galloways have comparatively little offal or excess fat, and consequently they dress a very high percentage of marketable beef.

280. Use for hides. — In midsummer the hide of the Galloway has no greater comparative value than that of any other breed. From November to March, however, when the coat of hair is long and at its best, the Galloway hide is worth five to eight cents per pound more than the hide of an animal of any other breed. There was a time when the western plains were covered with buffalo, which produced millions of robes, but these animals are now almost extinct, and the Galloway is the only domestic animal of the bovine race that can roam the plains and produce a superior quality of beef and robes that can take the place of the hides of the buffalo of days gone by.

281. Use for grazing. — As grazers, the Galloways are seldom equaled and never excelled. It has already been mentioned that the habitat of the Galloway was for centuries in the southwest of Scotland. They were often kept on the hills where the pasture was scant, and they invariably gave a good account of themselves. They respond readily to the luxuriant pasture of the valleys, but thrive and seem contented on the bleak, scant forage of the moorland. For a time they had a struggle for existence in this country, due to the keenness of their rivalry with the other beef breeds. Their persistent struggles and many victories in the show-yard in recent years, however,

have established a place for them in the corn-belt and the ranges of the West and Southwest, which will undoubtedly continue as long as our cattle industry remains. The constitution which was built up from years of exposure to inclement weather in Scotland furnishes the breed with the required merit to recommend it for the vast grazing ranges of the Northwest, West and Southwest. In summer on the range, the Galloway will make as good gains on luxuriant pasture as any breed, and will hold his own and often thrive on scant pastures or on drought-stricken regions where cattle of other breeds cannot exist. While the hardy constitution is put forward as a special merit, however, one should not forget that Galloways prefer luxuriant forage just as much as the softer breeds, and will give increased returns from good feed and care.

On the range where different breeds have been wintered it has been found that during severe storms the mortality among Galloways is much less, and the loss in weight due to disagreeable weather much smaller, than is usually in evidence among individuals of the less hardy breeds.

The Galloway calves are very active and hardy when dropped on the open range, and are soon able to rustle for themselves. In summer they can endure the broiling sun and withstand the severest storms in winter.

282. Use for crossing. — For prepotency, this breed stands in the first rank. It is conceded that the Galloway possesses the ability to perpetuate himself as uniformly in size, quality and color as any other breed. The stockman must have a uniform bunch of hornless steers in order to command top prices. By the use of a good Galloway bull on average cows the best results are invariably secured. The Galloway as a dehorner stands high among the polled

breeds. In this day when practically all feeding cattle are dehorned, the naturally polled cattle have a decided advantage over their horned rivals, as the dehorning process is many times dangerous and occasionally fatal, and in every instance it causes a temporary shrinkage in weight and tardiness in growth of animals.

For crossing with other breeds, especially with the Shorthorns, they are very valuable. The outcome of the cross of Shorthorn bulls on Galloway cows are usually known as "blue-grays." This system of crossing has been practiced for many years in Great Britain and to some extent in this country, and the results have been very satisfactory. The Shorthorn furnishes plenty of size, while the Galloway forms the low type and large proportion of natural flesh, qualities which up-to-date feeders and butchers are constantly demanding. When a pure-bred animal is crossed on any grade beef or dairy cow, the results are surprising and the offspring is invariably hornless, black in color and uniform in make-up. Galloway bulls are used very freely in the dairy districts of Great Britain, and the black calves sell at much better prices than those from bulls of the dairy breeds.

283. Distribution. — Galloways are found mainly in Scotland, Canada and the United States, but in smaller numbers are distributed also in England, Ireland, Russia, South Africa, Argentina, Mexico and Alaska. Recently the United States Government has introduced them into the Philippine Islands, where they are making a very satisfactory cross with the native cattle.

284. Organizations and records. — Galloway Cattle Society of Great Britain and Ireland; secretary, Francis N. M. Gourlay, Milnton, Tynron, Thornhill, Dumfriesshire, Scotland. The Galloway Herd-book is the official

record. Of this book, which is published by the Society, 35 volumes have been issued, containing the registry of 36,954 pedigrees. American Galloway Breeders' Association; secretary, R. W. Brown, Carrollton, Missouri. The Association publishes the American Galloway Herd-book, of which 20 volumes have been issued, containing 41,000 registrations. North American Galloway Association; secretary, Lieut.-Col. David McCrae, Guelph, Ontario, Canada. The registry work of this organization is conducted by the Canadian National Live-stock Records, Ottawa. About 2200 pedigrees have been recorded.

Sussex Cattle. Figs. 42, 43

By *Overton Lea*

285. Sussex cattle are so called from the county of that name in England, where they most abound. They are distinctly a beef breed.

286. History in England. — The origin of the Sussex, like that of all the oldest breeds of English cattle, is involved in obscurity. According to Youatt and Martin, some of the ancient Britons fled before the advance of their enemies to the Weald of East Sussex and carried with them their cattle, or found there some of the native cattle of the country, and zealously guarded them against all admixture. Alfred Heasman, editor of the first three volumes of the Sussex Herd-book, and author of a chapter on Sussex cattle in "The Cattle of the British Isles," doubts whether the breed was imported or found native to the country on the advent of William the Conqueror and

his followers. Be this as it may, the breed is universally recognized to be a distinct one. It has been a prominent feature of Sussex from time immemorial, and has preserved, unchanged through all vicissitudes, the same characteristics, — great weight, aptitude to fatten, and red color, — except in so far as improved by better feeding and greater care. Originally they were used chiefly for draft purposes, their great size and strength and activity, withal, enabling them to draw promptly the heaviest loads and till the stiffest soil. But, even in remote times, the quality of their flesh was highly prized and, when the oxen became aged, they were bought up, grazed a year, and supplied the markets with animals weighing 180 to 200 stone (a stone is about 14 pounds avoirdupois, making the weight 2500 to 2800 pounds).

These cattle have always been the favorite of the tenant farmer (than whom there is no better judge of a profitable animal) of Sussex and adjacent counties, and have constituted for many years one of the chief attractions at the local stock shows. More recently, stimulated by the exportation of large numbers of the principal breeds at fancy prices, some of the English breeders have sought to bring forward the Sussex more prominently at all of the leading shows of the British Isles.

287. History in America. — The date of the first importation to America is uncertain. Since 1880, a number of importations have been made. In 1884, the writer imported a number of this breed of cattle for his farm in Tennessee. In 1891, the Ontario Agricultural College at Guelph, Canada, made an importation.

288. Description. — For a short description, by way of comparison, imagine a Devon with the weight of a Short-

horn, and the picture will convey an accurate idea of the Sussex. More particularly, "the horns are of medium length, coming out at any angle, but generally horizontally, branching laterally, and turning upward toward the ends; nose tolerably wide, with muzzle of flesh-color; thin between the nostrils and eyes; eyes rather prominent; forehead inclined to be wide; neck short; sides straight; wide and open in the breast, which should project forward; girth deep; legs short; chine-bone straight; ribs broad; loin thickly fleshed; hip-bone not very large, and well covered; rump flat and long; tail with white brush, which should drop perpendicularly; thigh flat outside and full inside; coat soft and silky, with a mellow touch; color solid red, both light and dark, sometimes the two shades mingling and making a beautiful dappled bay; and a few gray or white hairs, nearly always single, except on the foretop, are regarded most favorably." (Figs. 42, 43.)

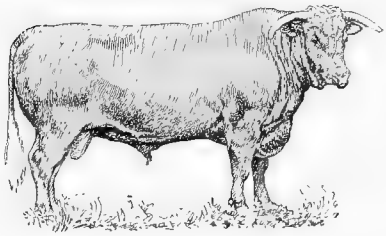


FIG. 42. — Sussex bull.

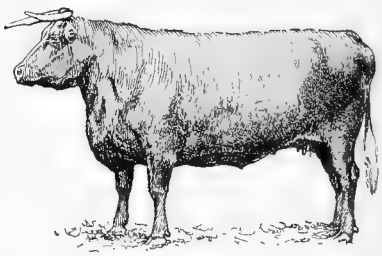


FIG. 43. — Sussex cow.

The special merits claimed for the breed are large size, early maturity, propensity to fatten, prime quality of flesh laid on the most desirable parts, hardihood of con-

stitution, uniform popular color and capacity to impress these characteristics on their offspring.

289. Uses of Sussex cattle. — As the Sussex is primarily a beef breed, its milk-giving qualities have not been especially developed. At the same time, the cows, almost without exception, give milk of most excellent quality and, if milked closely, make surprisingly good dairy animals. They fatten when dry more readily, perhaps, than the steers.

The Sussex has achieved the highest honors "on the scale and the block." The object of the breeders, as a class, revealed by the typical Sussex of to-day, has been to produce the most profitable butcher's beast; to hasten the period of maturity and improve the quality, without forgetting to preserve these most excellent characteristics of the breed, — sound constitution, capacity to rustle, fecundity and prepotency. About 1500 pounds for cows and 2000 pounds for bulls represent the average weights of animals in good breeding condition. The average weight of a well-fatted bullock, twenty-four months old, may be safely put at 1400 pounds.

The prepotency of Sussex bulls makes them valuable for crossing on native or grade stock, to improve the beefing qualities and ability to graze. They readily stamp their characters on their crosses.

290. Feeding and care. — The breed responds as generously as any to full feeding and care, and thrives on rough and scant pasturage. In cold weather, shelter — the lee side of a shed, or wind-shield, or straw-stack, if no better is obtainable — is a distinct advantage; at other seasons, nothing but fair grazing is required.

291. Distribution. — Sussex cattle are not yet widely distributed. Their local habitat is Sussex and the ad-

joining counties in England. They have been exported to Canada and the United States, and to South Africa, Egypt and South America.

292. Organizations and records. — At a comparatively early date in the history of registration, the English Sussex Herd-book Society established the English Sussex Herd-book, tracing pedigrees to the year 1855. The American Sussex Register was established in 1889 by the American Sussex Cattle Association. Comparatively few Sussex cattle have been imported to the United States, and only one volume of the Register has been published (1906), containing something less than 300 entries.

Literature. — Arthur Young, General Views of Agriculture in the County of Sussex (1893).

CHAPTER IX

THE DAIRY BREEDS OF CATTLE

Representatives of these breeds are alike milky in their form — in every way opposed to beefiness, triangular instead of rectangular, spare not thickly fleshed, long, lean and narrow in head and neck rather than short, broad and thick; light in the shoulder, narrow and lean in the chine, showing breadth only in the hind-quarters, which like the chine are lean and especially light in the thighs. The size, shape and texture of the udder should indicate great productive capacity.

Jersey Cattle. Plate X. Fig. 44.

By *M. A. Scovell*

293. The Jersey is one of the leading dairy breeds of cattle. The island of Jersey, eleven miles long and less than six miles wide, lying in the English Channel some thirty miles from the southern extremity of England and about thirteen miles from the coast of France, is its native home.

294. The use of the term Alderney. — In American and English writings there has been some confusion in the use of the term Alderney, as applied to cattle from the Channel islands. In 1844, Colonel Le Couteur wrote an article on the "Jersey Misnamed Alderney Cow." This article was published in the Journal of the Royal Agri-

cultural Society of England, Vol. 5, page 43, and was afterwards copied into the Transactions of the New York State Agricultural Society in 1850, and into Volume I of the Herd Register of the American Jersey Cattle Club. It forms the basis of our knowledge of the early history of Channel island cattle. When Channel island cattle were first exported to Great Britain, they were collectively called Alderneys, because vessels plying between the Channel islands and Great Britain cleared from the port of Alderney. The cattle were actually very largely from the island of Jersey, since that is the largest island and contains the most cattle. The local government of the Channel islands is administered through two municipalities, the one, the states of Jersey, comprising the island of Jersey alone; the other, the states of Guernsey, comprising Guernsey and the other inhabited islands, of which Alderney is one. For more than a century there has been no intercommunication of cattle from outside the islands or between the two municipalities themselves. This has been one of the agencies in the establishment of the two breeds, Jersey and Guernsey, which are now and have been for many years sufficiently distinct so as to be readily recognized. Alderney is in no sense an agricultural island, and the few cattle on the island are kept merely as family cows by the inhabitants. They come, of course, from Guernsey, and are of that breed. There has never been a distinct breed known as Alderneys, and the name "Alderney" has been more commonly applied to Jersey than to Guernsey cattle.

295. Early history. — The origin of the Jersey breed is conjectural, but it is probably the same as the original breed of Normandy. The earliest writers on the cattle of this Island assert that they were superior to those of Nor-

mandy and Brittany. Rev. Philip Falle wrote, in 1734, "The cattle on this Island are superior to the French." Thomas Quayle, in 1812, asserted an advantage over any other breed in the quantity and quality of cream produced from the consumption of a given quantity of fodder. Garrard, in the first part of the last century, gave the milk yield as three to four gallons a day, and the butter yield as 220 to 230 pounds a cow a year. According to Inglis, the general average produced at that time was ten quarts of milk a day and seven pounds of butter a week.

No distinct characteristics as to form and color were given by the earliest writers, except that Colonel Le Couteur mentions the fact that the Jersey farmer was content to possess an ugly, ill-formed animal with flat sides, cat-hams, narrow and high hips, a hollow back, yet ever possessing a lively eye, round barrel, deep chest, short, fine, deerlike limbs and a fine tail. Nor do any of the writers give the reason why the Jersey was superior to other breeds, until the article by Colonel Le Couteur appeared in the Journal of the Royal Agricultural Society of England, in 1845. In this article Colonel Le Couteur says: "The Jersey cow was excellent as she has ever been, which has been attributed to the circumstance of a few farmers having constantly attended to raising stock from cows of the best milking qualities, which attention, prosecuted for a long number of years in a small country like ours, where such superior qualities would soon be known, led to the excellence of milk- and butter-yielding qualities in the race. This never could have been secured so generally in Normandy, from whence our breed probably originated, or in any other extended country." We may assume, then, that the breed owes its peculiar qualities to an evolution of persistent breeding

to perpetuate and accentuate distinctive qualities, and to the exclusion of all other cattle from the Island. The method of tethering, which has always prevailed on the Island, may have had its influence.

An organized attempt was made to give a fixed beauty of form to the Jersey about 1835, when, says Colonel Le Couteur, a few gentlemen selected two beautiful cows with the best qualities as models. One was held to be perfect in her barrel and fore-quarters, the other equally so in her hind-quarters. From these two, a scale of points was laid down to be the rule for governing the judges at the cattle shows of the Jersey Agricultural Society.

At an early period, steps were taken to keep the breed pure by preventing outside cattle coming into the Island, and in 1763 an act was passed which has since been rigidly enforced, and supplemented by the further acts of 1789, 1826, 1864 and 1878, prohibiting the landing of cattle on the Island except for the purpose of slaughter. Even before the enactment of laws, the purity of the cattle was maintained by the persistence with which the Jerseyman clung to his own breed. Every effort to introduce other cattle, even from England, has been invariably rendered futile by the inhabitants.

The Royal Jersey Agricultural and Horticultural Society, organized in 1833, has been one of the chief means of improving the general character of the breed on the Island, and of developing its valuable dairy qualities. In 1836, the Society recommended that one superior bull be kept in each parish, and that encouragement be given to keep first-rate heifers in the Island, as the high prices offered were strong temptations to export them. In 1838, it enacted at least two new rules. One was to the effect that any person withholding the services of a prize

PLATE X. — Breed Types of Cattle. — Jersey Cow.



bull from the public should forfeit the premium; the other was that all heifers having premiums adjudged to them should be kept on the Island until they shall have dropped their first calf. If previously sold for exportation, they shall forfeit the premium.

296. History after 1850. — In 1853, the Society began to recognize the fact that it was unwise to ship out of the Island the best cattle, and urged the breeders against selling their best stock to be taken from the Island. In 1862, the Society reports, "To a very considerable extent, the business of the society is limited to the improvement of our insular race of cattle, which in itself is of the highest importance. We, therefore, wish to impress an observation on those who study the improvement of their stock — beauty of symmetry alone cannot ever be the acme of perfection. The latter can be obtained only when goodness and beauty are equally combined." "It is an established fact that the renown which the Jersey cow enjoys is attributable to the peculiar richness of its milk, as well as to its docility of temper and neatness of form. Now, as this richness is not so marked in some specimens as it is in others, it becomes advisable to make such selections in breeding as will ensure further amelioration in this most essential and highly important point."

Up to 1865, there appears to have been little attention paid to the quantity of milk which the Jersey gave. The quality of milk and the quantity of butter and beauty of form seem to have been the only points which the breeders had considered, up to that time. But, in that year, a committee of the Agricultural Society of Jersey urged that the Jersey breeder should pay greater attention to the milk-producing qualities of the cow, and that every cow with the least tendency to deficiency in quantity of milk

should be weeded out, and suggested that the judges especially consider this in awarding prizes. It will be seen, therefore, that the Jersey has been bred for quantity of milk for only about forty years. It was in the seventies that it became the fashion, both in England and America, to select solid-colored Jerseys with black points, and for some time this color craze had a detrimental influence on the breed. But it appears that the Agricultural Society of Jersey, ever watchful of the future interests of the breed, condemned this color craze, and, in 1873, it reports, "Let henceforth such fanciful ideas as black tails and black tongues be estimated at their proper value, but let the large and rich yield of milk be ever the breeder's ambition to procure."

The Jersey herd-book was started in 1866, and it has undoubtedly had a marked influence on the improvement of the cattle in the Island. In America or in England, an animal may be registered as soon as born, if its sire and dam are registered, or are capable of being registered. On the Island, however, inspection is made a conditional precedent to registering. The following are necessary conditions to registration:

(1) Every animal must be inspected by competent judges, and, if it is considered fit, it obtains a qualification, namely, *commended* or *highly commended*.

(2) Every bull submitted for qualification must be accompanied by his dam, in order that the merits of the latter may be taken into consideration in awarding a commendation to the former.

(3) No heifer, although she may be descended from registered parents, can be entered in the herd-book until she has had a calf, and if at the time of her examination she is a poor milker, she receives no commendation.

It will readily be seen, therefore, that by the method of registration on the island of Jersey, not only the pedigree can be traced, but it can be ascertained whether the dams and sires for generations back have been commended or highly commended by the commissioned judges. These commendations are shown in pedigree by the letter *C.* if commended, and by the letters *H. C.* if highly commended.

Jersey cattle were imported into England as early as 1835, and in large numbers in the forties. L. W. Low, in 1845, says, "The cows are imported into England in considerable numbers, and are esteemed beyond those of any other race for the richness of their milk and the deep yellow color of their butter."

297. History in America. — Importation into America began in 1850. In that year twelve animals were imported under the auspices of a club of farmers organized for the purpose. Only prize winners were purchased. The bull "Splendens" was in this importation, and he proved to be a very valuable animal. Other importations followed in the fifties, mostly to Connecticut, Massachusetts, New Jersey and New York, and from 1860 to 1890, importations were numerous and to nearly every part of the United States. More than two thousand head a year were imported year after year. Again, from about 1900 to the present time, many importations have been made. In fact, so numerously have Jersey cattle been imported and so rapidly have they increased in America, that they outnumber the Jerseys on the Island, and they have been so largely used for grading, that the Jersey characteristics are seen everywhere dairy cows are kept.

298. Description. — The ideal Jersey of to-day has a small head, short, broad, lean and dish-faced. The

muzzle, including the under lip, is black or dark in color, surrounded by a light or mealy strip of light skin and hair. The eyes are prominent, large, bright and wide apart. The horns are crumpled or incurving, small, waxy and often black-tipped. The ears are small, delicate and yellow-colored within. The neck is fine, clean and small. The legs are short, fine boned and small. The body is well hooped or rounded, large and deep. The tail is fine boned, long, with a full brush. The skin is mellow, loose, yellow, with short, fine, silky hair. The udder is large in size, extending well up behind and well forward, not pendant. The teats are medium sized, placed far apart on the udder, without having the udder cut up between them. The milk veins are generally highly developed, tortuous, knotty, and often spreading in several branches. The back should be straight from shoulder to the setting-on of the tail. So far as beauty is concerned, the sloping rump is very objectionable. The general appearance should be attractive and sprightly. The head should be erect when walking and the movements should be light, quick and graceful. When in full flow of milk, the Jersey should carry little flesh, but have muscular development enough for healthy activity and full digestive forces. (Fig. 44. Plate X.)

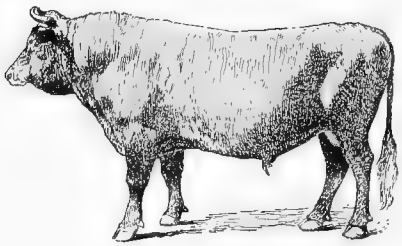


FIG. 44. — Jersey bull.

299. Use for milk and butter. — For many years the Jersey was bred almost exclusively for its butter-producing qualities. Many private and official butter tests have

been published, giving phenomenal yields of butter. As the result of these tests, so-called families of Jerseys have sprung up, as the St. Lambert, the Signal, the Combination, the Victor, the Tormentor. But a careful review of authenticated tests, and especially the results of the official tests at the World's Columbian and at the Louisiana Purchase Expositions, show that the excellence is inherent in the breed generally, and is not confined to any particular line or lines of breeding. Of late years, much attention has been paid to the breeding of Jerseys for milk-production as well as for butter, and for beauty of form, with excellent results. Jerseys giving four to five gallons of milk a day are not rare in most herds, and such cows are noted for persistence in milking. Records are given of individual cows giving 10,000, 12,000 and even over 18,000 pounds of milk in a year. Yields of butter-fat amounting to 600 pounds are common, and there are many records of over 900 pounds, the highest record being 999 pounds, 2.2 ounces, in one year.

Very interesting are the results from the dairy test at the World's Columbian Exposition at Chicago in 1893, and the cow-demonstration tests at the Louisiana Purchase Exposition at St. Louis, in 1904. In both instances the cows were selected and cared for by the American Jersey Cattle Club, and it may be assumed, therefore, that the best cows in the breed available at that time were selected in each case. The test was conducted in each instance by a committee of the Association of American Agricultural Colleges and Experiment Stations. The results show that the Jersey cows can assimilate a large quantity of food, give four to five gallons of rich milk a day, and that they are persistent milkers; and if conclusions can be drawn from comparison of the two tests,

each with the same number of cows, selected in the same manner, and under like conditions, it is that in the eleven years between these tests the Jerseys had increased largely in flow of milk, and in the production of butter.

The records of the Jerseys in the ninety-day test at the World's Columbian Exposition at Chicago, June–August 29, 1893, give the following summary of results for the twenty-five cows entered:

	Total Lbs. Milk	Average Per Cent Fat	Total Lbs. Butter
Grand total . .	73,488.8	4.784+	3,516.1
Average a cow . .	2,939.6	4.784+	140.6
Daily average a cow .	32.6		1.56

Most of the cows had been in milk one to three months and one at least five months prior to the beginning of the test.

The records of the Jerseys in the 120-day cow-demonstration test at the Louisiana Purchase Exposition at St. Louis, June 16–October 13, 1904, give the following summary of results for the twenty-five cows entered:

	Total Lbs. Milk	Per Cent of Fat	Lbs. of Fat	Lbs. of Butter
Grand total .	124,524.2	4.666+	5,810.7	6,841.6
Total average a cow	4,981.0	4.666+	232.4	273.7
Daily average a cow	41.5		1.9	2.3

The cows averaged sixty-nine days in lactation at the time the demonstration began, so in reality at the close of the test, the cows, on an average, had been in milk

nearly six months. The Jerseys not only gave over forty pounds of milk per day, but the milk was the richest of any in butter-fat, averaging 4.7 per cent, or an average of more than two pounds of butter per day for each cow, making a total of 274 pounds in 120 days. In the two months in which they were milked prior to the beginning of the test, they should have produced about the same amount of butter in proportion to the time as they had during the test, which would give an average for each cow for six months of $410\frac{1}{2}$ pounds of butter. When it is remembered that the average dairy cow gives less than 250 pounds of butter per year, these accomplishments seem all the more remarkable. These results were obtained without withdrawing a single cow because of sickness. They were fed on a profitable basis, each cow earning over cost of feed nearly $40, or a daily profit of 43 cents.

It is interesting to compare results during the first and last part of the test for the purpose of showing the persistency of production and endurance. During the first ten days of the test, the Jerseys gave 10,942 pounds of milk, or an average to a cow a day of 43.8 pounds; average per cent of fat in the milk, 4.25; total pounds of fat, 466, or an average to a cow a day of 1.86 pounds. During the last ten days they gave 9382 pounds of milk, an average of 37.5 pounds to a cow; average per cent of fat in the milk, 5.13; total amount of fat, 481.1 pounds, or an average to a cow each day of 1.92 pounds. While the cows decreased in flow of milk, they increased both in percentage and amount of fat, and a general improvement in the productive capacity of the Jerseys is indicated by a comparison of the two tests.

Subsequent records show that the milking capacity of the Jersey is being developed, without detriment to the

richness of her milk. A year's authenticated tests of Jerseys, received to July 31, 1915, show the following results:

	Lbs. Milk	Lbs. 85% Butter
1528 two-year-olds average	6,552	415
769 three-year-olds average	7,369	466
539 four-year-olds average	8,371	528
1461 cows five years old or over average	9,087	564
4297 cows and heifers, all ages, average	7,784	489
Ten two-year-olds average	12,155	771
Ten three-year-olds average	13,323	854
Ten four-year-olds average	14,183	967
Ten cows five years old or over average	16,458	1,067
Best two-year-old fat record	12,345	960
Best three-year-old fat record	17,793	1,071
Best four-year-old fat record	16,147	1,103
Best fat record at any age	17,557	1,175

Average percentage of fat in 4297 year's tests, 5.34

300. Other uses of the Jerseys. — The high butter-fat content of Jersey milk adapts it especially to the production of high-class cheese. At the World's Columbian Exposition it was given first place over the Guernsey and the Shorthorn in a cheese-making test. The demand for Jersey milk for the retail trade and for butter-making allows but little of it to be made into cheese.

The Jersey does not pretend to be a beef-producer. The meat is of good quality but is off in color. The Jersey dresses out too small a percentage of marketable meat, compared with the beef breeds, to adapt it to the butcher's block.

The Jerseys have been much used for grading on native cows to increase milk- and butter-production. Carefully selected bulls may be used for this purpose with very satisfactory results as the Jersey blood is very prepotent.

301. Feeding and care. — Jerseys have a capacity for assimilating large quantities of food and may be forced to advantage when in full flow of milk, as all extra food, in such case, is converted into milk. When the milk-flow begins to slacken, the food should be reduced, especially the concentrates. The Jerseys are large eaters of roughage and succulent feeds, as roots.

On the Island the method of caring for the cows has been the same for nearly two hundred years. In the summer they are tethered in meadows and pastures, and in the winter are warmly housed at night. The same care should be taken in the management of Jerseys in this country. They should have plenty of pasture to run on in the summer, and they should not be confined in the winter in day-time except in very cold and inclement weather. They should be treated kindly, as they have ever been on the Island. Nervous cows should be excluded from the herd, as well as those giving small quantities of milk, and those not persistent in their milk.

At one time the Jersey was supposed to be delicate, but the American breed of cows at this time seems to be constitutionally as strong as any other dairy breed, and not more subject to disease than other cattle, with possibly the exception of milk fever. But since the air treatment for this disease has been used, this heretofore dreaded affliction need no longer be considered a dangerous disease.

302. Distribution. — The Jersey is very widely distributed, due to its wide adaptation to conditions. As has been said, it is scattered through the United States and

Canada. England, France, New Zealand, Australia and many other countries can boast of large herds.

303. Organizations and records. — The two organizations which have done so much for the development of the Jersey are the Royal Jersey Agricultural and Horticultural Society, organized in 1833, and the American Jersey Cattle Club, organized in 1868, whose offices are at 324 West Twenty-third street, New York. In 1866, the first herd-book of the Island Society appeared. The American Jersey Cattle Club has published eighty-six volumes of its Herd Register, and the number of registered animals is 479,000, to date (Nov. 1, 1915).

The American Jersey Cattle Club has done much to develop and keep the blood of the Jersey pure in this country. The Club registers only such animals in its herd register as can be traced directly to the island of Jersey. The Jersey Bulletin published at Indianapolis, Indiana, is devoted exclusively to the interests of the Jersey cow.

Other organizations are the English Jersey Cattle Society, the New Zealand Jersey Cattle Breeders' Association, the Canadian Jersey Cattle Club, the Australasian Jersey Herd Society, the Japanese Jersey Cattle Club, and Le Syndicat des Eléveurs de la Race Jersiaise du Continent France. The former has published seventeen volumes of its herd-book; the latter, organized in 1903, has published one volume of its herd-book.

Literature. — John Thornton, History of the Breed of Jersey Cattle, Jersey Bulletin, Vol. 1 (1883); Black, Guide to Brittany (1873); Report of Highland and Agricultural Society of Edinburgh, 1878; Colonel Le Couteur, On the Jersey, Misnamed Alderney Cow, Journal of the Royal Agricultural Society of England, Vol. 5 (1845); C. P. Le Cornu, The Agriculture of the Islands of Jersey, Guernsey, Alderney and Sark, Journal of the Royal Agricultural

Society of England, Vol. 20 (1859); Ernest Mathews, The Jersey Cow, Little Shardeloes, Amersham, Bucks; John S. Linsley, Jersey Cattle in America, New York (1885); W. P. Hazard, The Jersey, Alderney and Guernsey Cow, Philadelphia (1872).

Guernsey Cattle. Plate IX. Figs. 45, 46.

By *William H. Caldwell*

304. The Guernsey is one of the four leading breeds of dairy cattle. They constitute, with the Jerseys, the Channel Island cattle and are noted for butter-production.

305. History in Guernsey. — The Guernsey breed of cattle originated and was developed on the island of Guernsey, which is one of the Channel islands. The foundation of the breed lay in the admixture of the large, red Normandy, and the little black Brittany breeds, which were brought from the neighboring coast of France to the Island. It has been generally accepted that the large red Normandy males predominated in crossing on the little black Brittany cows on Guernsey, and that the Guernsey takes many of its characteristics from the Normandy breed. The fact that for nearly one hundred years no live cattle have been permitted to come on the Island, is enough to say that the breed has remained pure, and been bred by itself without admixture of foreign blood. The Royal Guernsey Agricultural and Horticultural Society is largely responsible for the improvement of the breed.

Little more can be said of the history of the breed on the Island. The shrewd, careful, sturdy islander, while zealously guarding the purity of the breed, paid little

attention to the breeding and development of his cattle. In fact, on the Island, the glasshouse and bulb industry supplanted that of the cows in the islander's mind. The cattle were never bred to the dictate of fashion, but developed by themselves into a hardy, sturdy breed, commonly spoken of as "the old-time yellow and white cow — the farmer's cow."

306. History in America. — In 1818, a pair of cattle were secured from the island of Alderney, by Reuben Haines, of Germantown, Pennsylvania. These may have been Guernseys. The first definite record of importation of Guernseys into this country was about 1833, when a sea captain, stopping at the Island, brought to this country a pair of young animals that were sent to his brother on what is known as Cow Island, in Lake Winnepesaukee, New Hampshire. Traces of this importation are still to be found in some Guernseys in that state. Guernseys were introduced into private dairies around Philadelphia as early as 1840, and are still to be found in the dairies of some of those families who first introduced them there. About 1865, a few Guernseys were brought over by the Fowlers, who were importing Jerseys, and in some herds animals can be traced to the importations of that period. In June, 1871, James M. Codman, now President of the American Guernsey Cattle Club, selected eight cows and a bull on the island of Guernsey, and imported them. These few cows made a high reputation for themselves, and a number of owners of gentlemen's estates near Boston were attracted by their merits. This led the Massachusetts Society for Promoting Agriculture to send, in 1874, one of their members to import a herd, which was maintained by the Society for a short time, and then sold at auction to its members. This was followed by a number

of Connecticut farmers joining together, and sending a representative to the Island to bring over a shipment. These importations laid the foundation of the Guernsey in this country, and led to the establishment of the herd register.

The first real public introduction of the breed was in connection with the dairy test conducted by the New York and New Jersey Agricultural Experiment Stations, when the various breeds were tried, and the Guernsey made a most creditable record, the figures showing them to be the most economical producers of cream and butter, ranking the lowest in cost of food to produce a pound of butter-fat, and in the cost of food for maintenance for a year. The Guernseys and the sister Channel island breed (the Jersey) stood first in the annual production of butter, and the profit resulting from sale of cream. Their next appearance was at the World's Columbian Exposition at Chicago, in 1893, where amidst rules and conditions which failed to credit the breed fully on some of its special characteristics, the Guernseys ranked ahead on flavor and had the advantage on color of butter, and, as in the Experiment Station trials, stood with the Jerseys in the front rank as butter-producers. The last public appearance of the breed was at the Pan-American Exposition at Buffalo, where after a careful six months' test, the Guernseys were awarded the first prize for the greatest net profit in the production of butter-fat, and also in the production of churned butter. The Guernsey cows in this trial made butter at the lowest cost a pound, and returned the greatest profit in butter-production for the investment of feed. They also ranked in the production of total solids next to the heavier milking breeds. Grouping the cows in this test as a whole, the Guernsey cow,

Mary Marshall, made the greatest net profit of any cow in production of butter, and viewed from the same standpoint, we find three of the five Guernseys among the best five cows in the entire fifty.

307. Description (Figs. 45, 46). — "We recognize that the Guernsey should be —

"(1) A dairy animal with a distinctive dairy temperament and conformation, having a strong, nervy structure with a corresponding flow of nervous energy, and every indication of capacity and vitality.

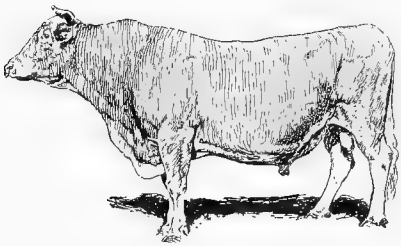


FIG. 45. — Guernsey bull.

"(2) In color of hair, a shade of fawn, with white on limbs and under part of body, are considered the prevailing markings, and some degree of uniformity is desirable.

"(3) One of the important distinguishing features of the breed is the presence of a yellow color in the pigment of the skin, which is indicative of rich golden color in the milk. This is very pronounced in the Guernsey and held by her to the greatest extent under all conditions of stabling and feed. The intensity of this trait is more marked in some animals and families than in others, but it should be kept at the highest standard. It is fast being recognized that this color is accompanied by a superior flavor in the milk and thus in the butter.

Dairy temperament. — "By 'dairy temperament' is meant a strong, overruling predisposition or tendency to turn the consumption of food towards the production of

milk with a high content of solids, especially butter-fat, as against the constitutional tendency, so often seen, to turn food into flesh. Even in the strongest dairy breeds there are more or less frequent outcrops in male and female of the flesh-making temperament. To breed from such animals, while we are striving to establish a prepotent dairy temperament or tendency, is not wise. All cattle bred specifically for dairy purposes should possess a clear and decided dairy temperament, for it is that quality of character we most desire to establish, enlarge and perpetuate in the Guernsey cow.



FIG. 46. — Guernsey cow.

"This is especially indicated by the shape of the head, showing brain capacity, wide muzzle, open nostril, full, bright eyes, feminine neck, and a construction of the backbone indicating a strong flow of nerve-power and support from the brain to all of the maternal organs.

Constitution. — "In breeding our domestic animals, especially for long service like the dairy cow, it is very important that they should have abundant vital power, which we call 'constitution.' But constitution must be judged and measured by the peculiar function the animal is bred to fulfill. With the race-horse the function is speed; with the steer, the laying on of flesh; with the dairy cow, the production of milk solids. In all these various functions, the animal that is to represent any one of them must show not only large capacity in the line of

that function, but also the ability to endure long and well the strain of such function, and keep in good health. Constitution is best indicated by a full development at the navel, and strong abdominal walls, showing that the animal, when in a prenatal state, was abundantly nourished by the mother through a well-developed umbilical cord.

Prepotency. — " In the scale for bulls, for the first time, we believe, in the history of dairy breeds, this point is introduced. The reason we have included it is that ' prepotency ' is the chief consideration in the selection of a male breeding animal. The pedigree and conformation is often all that can be desired, but because the bull is lacking in prepotent breeding power he is an expensive failure. This quality is, in a sense, difficult to perceive or describe, but we know certain animals have it in high degree and others fail of it completely. It is fairly well indicated by vigor of appearance, strong resolute bearing and abundant nervous energy. We would distinguish this from an ugly disposition. A bull is ugly by the way he is handled rather than by his breeding. What we want is strong impressive blood. A dull sluggish spirit and action, we consider indicative of a lack of true dairy prepotency, but we would prefer to breed to a rather sluggish-appearing bull with first-class rudimentaries than to a stylish one with badly placed rudimentaries.

Rudimentary teats. — " We consider that a well-balanced and well-shaped udder in the cow is largely due to the way the rudimentary teats are placed on the sire. If they are crowded close together the result is likely to be narrow, pointed udders. If they are placed well apart, of good size and well forward of the scrotum, the effect, we think, will be to influence largely the production of well-shaped udders in the resulting heifers, and counteract the tendency

to ill-shaped udders inheritable from dams deficient in this respect. We believe the future excellence of the Guernsey cow will be greatly aided by close attention on the part of her breeders to this point."

The temperament of both the bulls and cows of this breed is very quiet and uniform. The bulls are very tractable and the cows have been developed and handled on the Island in a way that would indicate gentleness and quietude.

308. Use for milk, cream and butter. — The chief characteristic of the Guernsey is her economical production of the highest natural colored milk, cream and butter. In this she has excelled and proved herself in all impartial trials. In England, and to a growing extent in this country, there is an impression that with this natural high color of her products there is a special and very desirable flavor. While the Guernsey is preëminently a cream and butter breed, it has been found within the last few years that the color and flavor of her milk, combined with a good amount which she is able to produce, has placed her a favorite in catering to the choicest trade in the sale of milk and cream. To-day, in nearly all our largest towns and cities, this trade will be found supplied with the products of full-blood and grade Guernseys.

This characteristic has appealed to two classes of dairymen — the progressive ones who are producing strictly high-class dairy products for a critical trade, from which the highest returns are secured, and those who desire the best flavored and colored milk, cream and butter for use on their private estate. To the former, the fact that in impartial trials the Guernsey has shown greater returns for a dollar invested in food when cream or butter, and even high-grade milk, is produced, is sufficient to win

for her a good trial. Wherever her golden-colored products are shown they are sure to win recognition. Numerous instances can be cited in which the products of herds of Guernseys are supplying such markets. A good grade Guernsey cow is eagerly sought in the higher-class dairies.

The American Guernsey Cattle Club was the first to establish an Advanced Register on a yearly basis. This was done in 1901, and since this date 4351 cows and young heifers have entered with an official test averaging 8779.91 pounds of milk and 437.20 pounds of butter-fat and an average percentage of 4.979. The improvement which is steadily being made in the breed as shown by the average annual increase in average fat production is seven pounds per year for the last four years. During the time since the establishment of the Advanced Register the world's record for the production of butter-fat has been held by three different Guernsey cows, the first being made in 1905 when one cow produced 14,920.8 pounds of milk and 857.15 pounds of butter-fat. Another cow later produced 19,673.00 pounds of milk and 1073.41 pounds of butter-fat, and still another 24,008.00 pounds of milk and 1098.18 pounds of butter-fat.

309. Other uses of Guernseys. — The composition of Guernsey milk adapts it for the preparation of high-grade cheese, but because of the demand for the milk, cream and butter, it is not used largely for cheese-making.

While a distinctively dairy breed, the size of the Guernsey allows her easily to be converted as a young animal, or when past her usefulness as a milker, into beef. There are few prettier sights than those seen in the meat division of the great market of St. Petersport on the island of Guernsey, and this testifies what can be done with the breed in this respect.

The prepotency of the Guernsey bull, or his ability to stamp the desirable characteristics of the breed on his offspring, makes him most valuable for improving the common dairy stock of any section. If he is employed intelligently, he will get grade cows yielding rich milk, and possessing good constitution and productivity.

310. Distribution. — The even temperament of Guernsey cattle has been very conducive to the adaptability of the breed to the various climates and conditions of the world at large. They are found mainly on Guernsey island, in England, Canada and the United States. The only hindrance to their widespread introduction has been the fact that for the last few years there have not been enough animals to supply the demand.

Since the public has learned to appreciate the discriminating qualities of milk, cream and butter, the Guernsey cow has been in great demand. Her distribution within the last few years has made material gains. The transfer of ownership recorded in the herd register shows that the breed has now an excellent footing in all the prominent dairy sections, and every indication points that the demand for both pure breds and high-grade Guernseys has increased materially in the last few years.

311. Organizations and records. — The Royal Guernsey Agricultural and Horticultural Society directs the interests of the breed on Guernsey island. It maintains a herd-book for general registration. In 1885, the English Guernsey Cattle Society was organized. It issues a herd-book. The American Guernsey Cattle Club was organized in 1877. It has published twenty-nine volumes of the herd register, and there were recorded in May, 1915, 32,320 males and 55,640 females. Over 11,114 entries were made in 1914. Since 1910 an official breed organ

known as Guernsey Breeders' Journal has been published, and a department of the herd register is maintained as an Advanced Register. At the present time there are 497 active members of the American Guernsey Cattle Club and some 3400 breeders of Guernseys. The headquarters of the club are at Peterboro, New Hampshire.

Literature. — Hazard, The Jersey, Alderney and Guernsey Cow, Philadelphia (1872); herd register of the American Guernsey Cattle Club; Guernsey Breeders' Journal, Published by the American Guernsey Cattle Club.

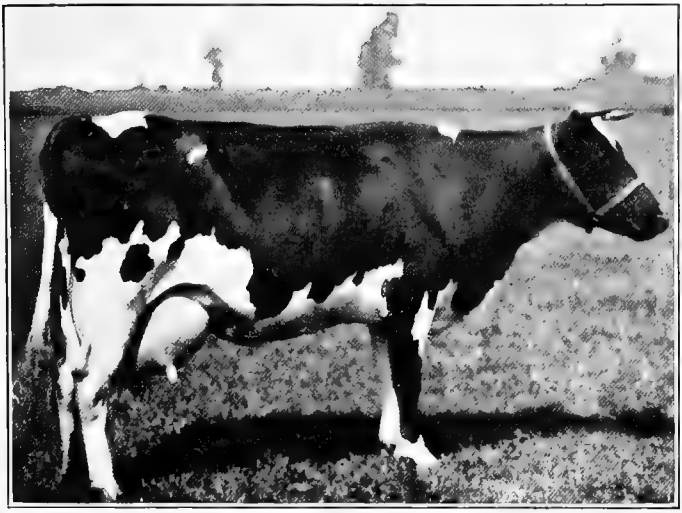
Holstein-Friesian Cattle. Plate XI. Figs. 47, 48.

By *Solomon Hoxie*

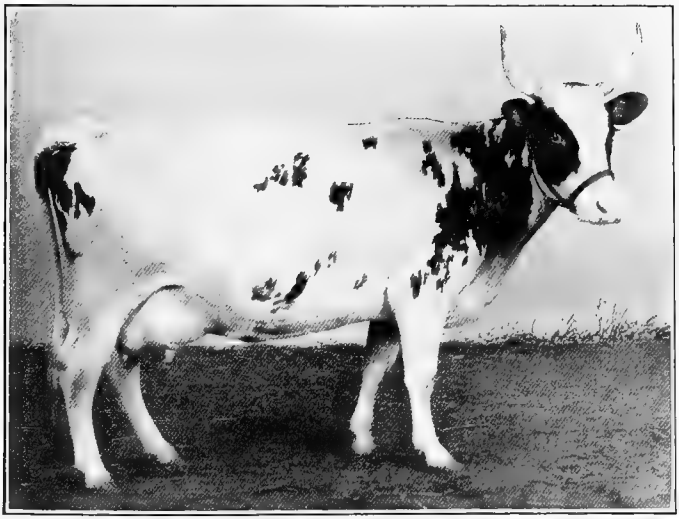
312. The Holstein-Friesian breed of cattle is the American representative of the great lowland race of cattle found on the rich alluvial land in Europe, bordering the eastern shores of the North sea. It is a dairy breed, exclusively, in this country.

313. History in Europe. — The Holstein-Friesian cattle originated with the ancient Friesland people, a tribe which, at the time of our earliest historical knowledge of it, occupied the shores of the North sea, between the river Ems and the Rhine. The Friesians were the oldest inhabitants of Holland, and were known as herdsmen, hunters and fishermen. Their history dates as far back as three hundred years before Christ. The Batavians came two hundred years later. They were likewise herdsmen, but occupied themselves more particularly with hunting and fishing. Tacitus says of the Friesians and Batavians: "They owned cattle, not excelling in beauty, but in number." The present farmers of North Holland

PLATE XI. — Breed Types of Cattle.



Holstein-Friesian Cow.



Ayrshire Cow.

and Friesland are lineal descendants of these ancient people, and the multitude of black and white cattle which they own are lineal descendants of the cattle owned by their ancestors. In North Holland at the present time there are some 80,000 head of pure-bred cattle of this breed, and in Friesland at least 125,000. They are found in other provinces of Netherlands to a limited extent.

The lowland race of which this breed is the leading representative has been the prolific mother of other breeds in Europe. From it have sprung the East Friesian and Oldenberg breeds of Germany, the Jutland breed of Denmark, the Kolmogorian breed of Russia, and the Flamande or Flemish breed of Belgium and northern France. These approach each other in color, but differ in other important characteristics. They have been produced largely by the effect of different environments, and are maintained in their purity, in the different localities, by well-established herd-books. According to the naturalist, Low, also, before the development of English dairy breeds Friesian cattle were imported into that country, and established especially in the district of Holderness on the north side of the Humber, whence they extended northward through the plains of Yorkshire. It is asserted that from the mixture of this Friesian breed with the native cattle finally sprang the improved Shorthorn. Friesian cattle were also made the basis of the composite Rosenstein breed, which was so greatly admired by Klippart, and described by him in his report to the Board of Agriculture of Ohio in 1865.

314. History in America. — It is probable that cattle of this breed were brought to America by the early Dutch settlers and that a few were imported late in the eighteenth and early in the nineteenth centuries. The Holland

Land Company is reported as having sent a few animals to Cazenovia, New York, in 1795. William Jarvis imported a bull and two cows in 1810, for his farm at Weathersfield, Vermont. Another importation into New York State was made in 1825. The first importer, however, to establish and maintain a pure-bred herd, was Winthrop W. Chenery, of Belmont, Massachusetts. He made importations in the years 1852–7–9, and 1861. Until 1871, these cattle were almost universally known in this country as Dutch, although as early as 1864 the United States Department of Agriculture had recognized them as Holstein cattle. In that year (1871), the Association of Breeders of Thoroughbred Holstein Cattle was organized with Mr. Chenery at its head. This gross error in the renaming of a well-known breed was regarded by the Dutch breeders as a great injustice to them. They protested vigorously, and finally, unable to secure justice directly, in 1873, assisted Thomas E. Whiting, of Massachusetts, to select and purchase a herd of their cattle, pledging him to establish in America a herd-book which should maintain the correct name of the breed. This herd finally came into the hands of the Unadilla Valley Breeders' Association, who, with other owners, organized in 1879 the Dutch-Friesian Cattle Breeders' Association of America. A sharp controversy ensued, which was finally brought to a close in 1885, through the union of the contending bodies in the present Holstein-Friesian Association of America.

The significant history of this breed in America centers almost entirely about the establishment and maintenance of a system of advanced registration. The advanced registry system was originated by Solomon Hoxie, while secretary of the Dutch-Friesian Association. The neces-

sity for it was suggested to him by the fact that many cattle of doubtful merit and unknown breeding were being entered in the Holstein herd-book. There was need of recognized intrinsic standards of merit to serve as guides in breeding and selection. Accordingly, he induced the Dutch-Friesian Association to maintain an Advanced Register, in which cattle should be entered only in case of special merit, determined for bulls by means of an official scale of points, and in the case of cows by an additional scale of productiveness. While there was much early opposition to the Advanced Register, it has abundantly demonstrated its value. Since about 1894, it has been recognized as the chief means for the advancement of the interests of the Association and of its members, and its essential principles have been adopted by other breeders' organizations both in America and Europe. It is to be regretted that descriptions and measurements in the practical operation of the system have been abandoned. It is also unfortunate that the Association, while admitting cows to the advanced registry only on the basis of the yield of butter-fat, tacitly sanctions the use of too low a factor for the conversion of butter-fat into butter records. The factor 80 per cent, generally used, cannot be too severely condemned, since repeated demonstrations show that good marketable butter requires the presence in the milk of at least 85.7 per cent of its weight of butter-fat.

315. Description. — In color, the Holstein-Friesian is invariably black and white. It is specially characterized by great constitutional vigor, flexibility, thrift and enormous production of milk of comparatively low percentage of butter-fat. At the present time, 1915, as a result of mutation, many cows are producing milk through whole lactation periods in quality exceeding 3.75 per cent fat and

some are making annual records of 4, 4.50, and even as high as 5 per cent fat.

The ideal type of this breed, which has become constant in North Holland and Friesland, is designated as "milk and beef form." This form involves great breadth and length of rump; superior width of hips, with loin slightly rounded; well-sprung ribs; rounded body, with the abdomen well held up; a straight chine; shoulders slightly lower than hips and rounded at tops, from whence the neck starts out level, or nearly so, and is carried symmetrically to a finely formed throat and rather long head, bearing a broad muzzle. It also involves comparative fineness of limbs, and quarters broad at sides and rear without puffiness; a capacious udder of considerable depth, carried well forward in front and well up in rear, and a large development of mammary veins. An animal of this form will appear slightly wedge-shaped, viewed both from front and side (Figs. 47, 48. Plate XI).



FIG. 47. — Young Holstein-Friesian bull.

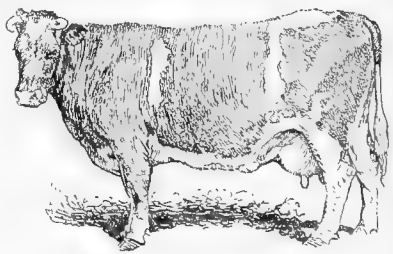


FIG. 48. — Holstein-Friesian cow.

This ideal type, however, varies with respect to locality

and breeding purpose. It " is identified," says Professor Hengerveld, " with their use, lodging, feeding and management." The tendency of breeding, in the United States, is altogether in the direction of milk form.

The heifers mature rapidly, and, if well fed, are ready to breed at twelve to fifteen months of age. As a rule, they deliver their calves without difficulty and may be relied on to enter the dairy herd, productively, when two years old.

316. Use for milk. — Freshening between two and three years old the heifers produce with first calf about three-fifths to three-fourths the quantity of milk produced by mature animals of the breed, and if liberally supplied with suitable food will produce 8000 to 10,000 pounds of milk in one year. They will continue their growth and increase in productiveness until four and one-half or five years old, at which age they will reach, if in good milking condition, an average weight of 1300 pounds. From this time forward average cows of the breed will produce when in full flow of milk fifty to seventy pounds of milk daily or 12,000 to 14,000 pounds of milk a year until eleven or twelve years of age. Tests of over two thousand animals of all ages for a lactation period not exceeding 365 days show that the average per cent of fat is between 3.3 and 3.5 and that the total solids average 12 per cent. In Holstein-Friesian milk the solids not fat, to the fat, average one to two and one-half. That is, in average Holstein-Friesian milk for every pound of fat will be found not less than two and one-half pounds of solids not fat.

To the close of the fiscal year 1914–15 on April 30, 1915, 1992 Holstein-Friesian cows and heifers had completed tests covering a lactation period of not exceeding 365 days as follows: 707 full-aged cows averaged: milk,

16,248.5 pounds; per cent fat, 3.41; fat, 554.78 pounds. One hundred and thirty-nine senior four-year-olds averaged: milk, 15,167.6 pounds; per cent fat, 3.39; fat, 513.56 pounds. One hundred and sixty-three junior four-year-olds averaged: 14,479.2 pounds milk; per cent fat, 3.44; fat, 498.12 pounds. One hundred and seventy-five senior three-year-olds averaged: milk, 13,841.9; per cent fat, 3.41; fat, 471.77 pounds. One hundred and seventy-six junior three-year averaged: milk, 13,445.8 pounds; per cent, 3.46; fat, 465.43. Two hundred and four senior two-year-olds averaged: milk, 13,029.6 pounds; per cent fat, 3.49; fat, 454.23 pounds. Four hundred and twenty-eight junior two-year-olds averaged: milk, 12,167.4 pounds; per cent fat, 3.43; fat, 417.79 pounds. This herd of 1992 produced 28,610,589.6 pounds milk containing 980,755.54 pounds of butter-fat, thus showing an average of 3.43 per cent fat. The average for each animal was 14,362.7 pounds milk containing 492.34 pounds of butter-fat, and showing an average of 3.43 per cent fat.

Thirty-four Holstein-Friesian cows and heifers have produced within a period of not exceeding 365 days in excess of 850 pounds fat, which is several times the number of cows of all other breeds combined that have produced in excess of that amount of fat. The first and second places in butter-fat production among cows of all breeds is now held by Holstein-Friesian cows; Finderne Pride Johanna Rue having produced 1176.47 pounds fat from 28,403.7 pounds milk, and Finderne Holingen Fayne having produced 1116.05 pounds fat from 24,612.8 pounds milk. The California cow Tilly Alcartra has exceeded all other cows in milk production, having produced in 365 days 30,451.4 pounds milk containing 951.23 pounds. Dozens of other Holstein-Friesian cows have produced

very large amounts of milk running between 24,000 and 29,000 pounds in 365 consecutive days. These records illustrate the highest attainments of the breed thus far in the matter of milk- and butter-fat production. For such production, the cow, of course, must receive special care and food, and must be milked three or four times a day.

The milk of this breed has several peculiar and notable characteristics. It is not highly colored. "The absence of granules, as a predominant feature, makes the skimmed milk especially appear blue." The fat globules are comparatively small and uniform in size. The cream, therefore, rises slowly, but it is dense in consequence of the compactness of the globules. The milk is richer than the color or thickness of the cream would indicate. After the cream rises to the surface it is easily re-incorporated in the milk by stirring or shaking. This renders the milk more than ordinarily valuable for direct consumption purposes, especially for city supply, since it insures to all consumers a comparatively uniform quality. Moreover, both the milk and the cream approach the structure of the corresponding human products more closely than those of any other breed which has been tested in this respect. This leads to the inference that the milk of this breed is superior to that of any other for the feeding of young children. Recent experiments made at the Storrs' Agricultural Experiment Station in Connecticut tend to substantiate this inference.

317. Use for butter. — Butter-fat records of the breed have been no less remarkable. (See above.) In 1894, state agricultural experiment stations began the official supervision of the testing of Holstein-Friesian cows at the homes of the owners. Thousands of such tests for a

period of seven consecutive days have now been made. These tests are annually classified according to the age of the cows at date of calving. A summary of such records for a single year will serve to show the butter-making possibilities of the élite of the breed. During the fiscal year 1914–15, 3115 full-aged cows averaged: milk, 475.8 pounds; butter-fat, 16,947 pounds. Six hundred and sixty-one senior four-year-olds averaged: milk, 453.6 pounds; butter-fat, 16.405 pounds. Nine hundred and twenty-eight junior four-year-olds averaged: milk, 444 pounds; butter-fat, 16.076 pounds. Nine hundred and fifty-five senior three-year-olds averaged: milk, 419.4 pounds; butter-fat, 14.865 pounds. One thousand two hundred and three junior three-year-olds averaged: milk, 398.7 pounds; butter-fat, 14.194 pounds. One thousand one hundred and two senior two-year-olds averaged: milk, 360.1 pounds; butter-fat, 12.603 pounds. Two thousand seven hundred and seventy-nine junior two-year-olds averaged: milk, 324.1 pounds; butter-fat, 11.434 pounds. Two thousand six hundred and twenty-five cows of the breed have official records greater than 20 pounds of butter-fat in seven days, and one thousand and eighty-four cows of the breed have official records greater than 80 pounds of butter-fat in thirty days. Such records are usually made at ten to fifty days after parturition. A lapse of at least five days is required. There can be no doubt as to the correctness of these records. In many cases, especially when the yield was exceptionally large, the cows were re-tested for periods ranging from twenty-four to forty-eight hours by representatives of the experiment stations, who kept constant watch in order that no milk or cream should be introduced into the udders surreptitiously.

It is not maintained, of course, that the average pure-bred Holstein-Friesian cow or heifer could produce equal records. Probably the best one-third of all those owned in this country could do so if sufficiently well fed, skillfully cared for and milked three times a day. It is probable that in butter- as well as in milk-production, the average cow of this breed would excel the average cow of any other known breed.

Butter made from the milk of these cows is comparatively mild in flavor and, if not artificially colored, is of a pale straw-color in summer, when the cows are fed on grass, and of a creamy white in winter when they are fed on hay. In keeping quality it ranks very high. The butter of Friesland has long been recognized as a standard product in the markets of Europe, and the butter of cows of this breed is steadily gaining favor in our own markets.

318. Other uses of Holstein-Friesian cattle. — The milk of Holstein-Friesian cattle makes a very high grade of cheese, and it has been much used for this purpose both in Holland and in America. The milk is rich in solids other than fat.

This breed combines with its great milk- and butter-producing capacity, valuable veal qualities. Its calves are very large and vigorous at birth, grow rapidly and are exceptionally free from disease, — especially from that which is known as white scours. When vealed at the end of four or five weeks they dress 90 to 120 pounds. The veal is of superior color, sweetness and tenderness.

For crossing on grade cows to increase milk-production the pure-bred bulls of this breed give very satisfactory results.

319. Feeding and care. — The extraordinary vigor of cattle of this breed permits very wide latitude in caring

for and feeding them. In some sections of Holland " they are found on lands covered with water plants and grass of small nutritive value." In northern Russia they are successfully kept in the frigid climate near the Arctic circle. The only hard-and-fast rule for feeding is: " Feed abundantly well-balanced rations." The breeders in Holland and Friesland confine their cattle in their stables constantly from the middle of November through the winter till the middle of May, apparently without injury to them, at much less expense of food and with greater production of milk than results from the practice of daily exposure to the outside atmosphere, as in America. Their method requires, however, much greater air space per animal, and hence that they be confined in much larger buildings.

320. Distribution. — This race of cattle is widely distributed on the continent of Europe, prevailing especially in northern France and along the shores of the English Channel and the North sea, as far as Denmark. It is the leading dairy breed in Russia, occupying the shores of the River Dwina and the White sea nearly to the Arctic circle. It is firmly established in nearly every province of Germany, in Italy, Sweden and Denmark. It is also bred in South Africa, and is being introduced into Japan and China. Introduced into the United States less than sixty years ago, it has spread to every important dairy section of this country and to Canada, and more recently to Mexico. It is especially adapted to rich, level grasslands and to densely populated, highly civilized countries in which milk and its every product, and veal of superior quality, are in demand.

321. Organizations and records. — Organizations for the promotion of the interests of this breed were closely

associated with the history of the breed in America (which see, page 279). It is a singular fact that while the thoughts and energies of so many generations were devoted to breeding and improving these cattle, the first public herd-book of the breed was published in 1872 by an American, Winthrop W. Chenery, of Belmont, Massachusetts, by authority of the Association of Breeders of Thoroughbred Holstein Cattle. It was known as the Holstein Herd-book. Three years later a herd-book was issued in the Netherlands, by the Netherland Herd-book Association. It was a protest against naming Holland cattle from a German province that had no valid claim to the origin of the breed. In 1879, the Dutch-Friesian Cattle Breeders' Association was formed in America. In the same year the Friesian Herd-book Association was organized in the province of Friesland. A few years later the North Holland Herd-book Association was organized and a branch was established in America. The present Holstein-Friesian Association of America was formed in 1885 by the union of the Holstein and the Dutch-Friesian Associations. It limited importations to a great extent, and in consequence of this the Netherland and North Holland Associations became nearly moribund. Recently, the former has adopted a system similar to the American system of advanced registration, and probably may become an institution of great value to breeders in all the provinces of Holland, with the exception of Friesland, where the early association was of a similar character. The Western Holstein-Friesian Association was organized in 1892, and published its first and only herd-book in 1895, containing pedigrees of 2100 cattle. It was united with the Holstein-Friesian Association of America in 1898, and its pedigree records became a part of the herd-book of the older asso-

ciation. The Holstein-Friesian Association of Canada was founded in 1891.

The Holstein-Friesian Association of America was incorporated for the purpose of importing, breeding, improving and otherwise handling pure-bred Holstein-Friesian cattle, and for gathering and publishing information in regard to them. It maintains a herd-book and advanced register of cattle. The entries to its herd-book have reached over 152,000 bulls, and 273,000 females. The policy of this association has been to maintain the purity of the breed in America, to improve the type by selection of the most superior animals for separate or advanced registration, and to demonstrate the merits of the breed through the making of great milk and butter records. It has maintained a consistent advocacy of tests at the homes of owners under the strictest supervision of agricultural experiment stations. In this respect it took the initiative, and has compelled other breeders' associations to follow.

Literature. — Holstein Herd-book, 9 volumes, 1872–1885; Dutch-Friesian Herd-book, 4 volumes, 1880–1885; Holstein-Friesian Herd-book, 33 volumes, 1885–1915; Holstein-Friesian Advanced Register, 26 volumes, 1887–1915; Breeds of Dairy Cattle, 15th Report, Bureau of Animal Industry, United States Department of Agriculture; Friesian Cattle, Twentieth Report, Ohio State Board of Agriculture; Reports of New York State Dairymen's Association for 1878-1880; Holstein-Friesian Cattle, S. Hoxie, Holstein-Friesian Association, third edition, 1904; Advanced Registration, S. Hoxie, in Proceedings of the American Association of Live-stock Herd-book Secretaries, 1904, C. F. Mills, Editor; The North Holland or Friesian Breed, Utica, Curtis and Childs (1884), S. Hoxie, Editor; Records of Dairy Cows in the United States, C. B. Lane, Government Printing Office, Washington, D. C. (1905); History of the Holstein-Friesian Breed, Brattleboro, Vermont (1897), F. L. Houghton; Cattle and Dairy Farming,

United States Consular Reports, 1887; Holstein Cattle, Dudley Miller; Die Rindviehzucht im In und Auslande, J. Hansen and A. Hermes, Leipzig, Carl Schmidt & Co., 2 volumes (1905); Friesch Rundvee Stamboek, 32 volumes, 1880–1906; The Holstein-Friesian Yearbook, 1901–1912, 12 volumes, F. L. Houghton; Western Holstein-Friesian Herd-book, 1 volume, 1895, Western Holstein-Friesian Association; The Holstein-Friesian Register, Brattleboro, Vermont, F. L. Houghton; The Holstein-Friesian World, Eastern and Western Editions alternating weekly, Lacona, New York and Madison, Wisconsin, the former edited by Hastings and Prescott, the latter by C. B. Brown and Son.

Ayrshire Cattle. Plate X. Figs. 49, 50.

By *Harry Hayward*

322. The Ayrshire is one of the four principal breeds of dairy cattle in America. Their popularity is more recent than that of the three other breeds, but they are making rapid gains in favor.

323. History in Scotland. — The Ayrshire did not have its origin in this country, but was brought from Scotland, its native home, in the early part of the last century. It takes its name from the county Ayr, although in its formative period it was known as the Dunlop and the Cunningham breed.

From the descriptions of Ayr and the adjacent territory, given by Low, an English writer on agricultural matters, it may be inferred that agricultural conditions in that country, at the close of the Revolutionary War, were at a low ebb. "There were no fallows, no sown grasses, no carts nor wagons and no straw yards; no roots were grown, very little straw and no hay, save the small amounts cut from the bogs and wastes. Under these conditions

the cattle were starved in winter, being scarcely able to rise in the spring, and never were in condition fit for the market." Such were the conditions from which the hardy, useful race of Ayrshire cattle has come. Culley, who wrote a treatise on live-stock before the year 1790, does not mention the Ayrshire as one of the recognized breeds of the country. From this we may conclude that their history as a breed begins some time shortly after the first of the past century; previous to that time, they were one of the coarse varieties of cattle which formerly occupied all of the southern part of the country.

The earliest recognition which they received as a breed was given by a Mr. Aiton, who published a treatise on the Dairy Husbandry of Ayrshire, in 1825. He describes them, according to Low, as being a puny, unshapely race, not superior to the cattle of the higher districts, referring, perhaps, to the West Highland or Kyloe cattle. He further states that the Ayrshires, at that time, were mostly black in color, marked with white in the face, down the back and flank, and that few of the cows gave more than a gallon and a half or two gallons of milk per day when fresh. They were very small in size, so small that the average dressed weight of mature animals was but two hundred and eighty pounds.

This description was written, it is asserted, after the introduction into the Ayrshire district of the cattle descended from the crosses made with the Teeswater or Holderness stock from Durham, England. The Earl of Marchmont is supposed to have brought this foreign blood into Scotland between 1724 and 1740. This importation of a bull and several cows was taken to the earl's estates in Berwickshire on the east coast of Scotland.

It has been thought that the Alderney (presumably,

Jersey) cross was also introduced into the Ayrshire district at this time. An evidence that the Jersey was used is the small head and slender neck possessed in common by both these breeds. In spite of the lack of historical evidence that Jersey cattle were crossed on the old Ayrshire stock, Low concludes that the " Dairy Breed of Ayrshires owes the characteristics which distinguish it from the older race to mixture with the blood races of the continent and of the Dairy Breeds of Alderney."

From the above, we may rightly infer that the conditions which surrounded the foundation of the Ayrshire breed were such that the fittest only could survive. This factor of hardiness was apparently but little disturbed, if any, when the Teeswater cross was made. Hardihood has been so closely interwoven with every fiber of the Ayrshires that they are to-day the most hardy of all breeds of dairy cattle, with the possible exception of the Irish Kerry. It is probable that the Teeswater cross eventually increased the milk-producing ability of the Ayrshire.

What is true of many of our improved breeds of cattle is true, also, of the Ayrshire: that no one breeder stands out prominently from his fellows as the great improver of the breed. The dairy-farmers of Ayr and the adjacent counties worked together for the common purpose of developing a hardy, active race of cattle adapted to the humid climate and sparse hillside pastures, as well as a race that would produce the maximum amount of milk when fed on chaffed straw and roots during the long winters of Scotland. Their success is indicated by the very large number of exportations from Scotland to other countries.

324. History in America. — Ayrshire cattle were first imported into America between 1820 and 1830. Importa-

tions continued to be made into the eastern states with more or less regularity up to about the beginning of the Civil War. Importations are thought to have been made in 1822 by H. W. Hills, of Windsor, Connecticut; about 1837 by John P. Cushing, of Massachusetts, and in 1848 by E. A. Brown, of Ohio. While the imported cattle gave their owners entire satisfaction as far as hardiness, ease of keeping and milk-production were concerned, they failed to find much favor where the milking is done by men, because of the shortness of their teats. In Canada and in Scotland, where women milk by stripping with the thumb and forefinger, this fault was not the serious objection that it was in eastern United States. It is possible, too, that another reason why the Ayrshire did not grow in favor more rapidly was that the center of the breed, in its early history in the United States, was in New England, and in the hands of dairy-farmers. The cattle were kept for practical purposes, and but little attention was paid to breed characteristics, to exhibiting at the fairs, or to advertising the merits of the breed in any other way.

325. Description. — The individual Ayrshire (Plate XI) is an animal of medium size, the standard weight for mature cows being one thousand pounds, while bulls should weigh fifteen hundred pounds or more (Figs. 49, 50). In general conformation it is, perhaps, a little smoother than the Jersey and Holstein, yet it is not so smooth as to conceal the wedge shape of the body when viewed from behind. A little peculiarity frequently seen in the Ayrshire is that the tips of the ears are frequently notched. The horns are white, with black tips, and curve outward and upward. They may attain large size. The body is large and deep and the ribs well sprung; the rump is broad and long, and is usually set high. The

hind-quarter is frequently heavy. The udder in a good dairy type shows high development of form and setting. This character is rather uniform in the breed. The color is variable, through red, white and brown. The prevailing color in America is red and white patches, with a tendency toward a predominance of white. In disposition the Ayrshire is mild and kind, yet alert, active and energetic. The evidence she gives of being full of reserve force is one of her strongest characteristics.

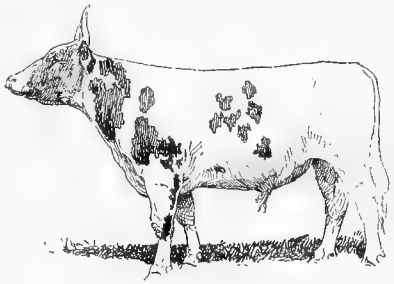


FIG. 49. — Ayrshire bull.

326. Types of Ayrshire cattle. — The event which served to bring the Ayrshires from their obscurity in America, and but for which they might still have been comparatively unknown, was the World's Columbian Exposition, held in Chicago in 1893. At this great World's Fair two distinct types of Ayrshire cattle appeared in competition: the American or New England type, which, having received no fresh infusion of blood from the mother country for many years, had become to all intents and purposes another breed, and the

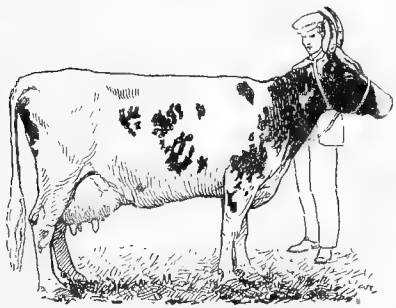


FIG. 50. — Ayrshire cow.

Canadian or, more properly, the Scotch type. This type was represented solely by animals that conformed to the type generally held by every one but American breeders to be the correct one, and many individuals had been prize-winners at the important agricultural shows in Scotland.

The New England cattle differed from those of Scotch type in that they were a little shorter in the leg, heavier bodied, and possessed better handling qualities. Their udders, while large and capacious, were hardly level and square, and in many cases were rather pendulous. The teats were of good size and length, and of a dark or tan color; the horns frequently were crumpled, and the colors were dark-brown or cherry-red, flecked with white. While these cattle possessed unquestioned dairy merits, they did not have the uniformity of type that should be characteristic of a recognized breed.

The Scotch cattle were longer and not relatively so deep in the body as their competitors; a trifle longer in the leg; hardly so rugged, perhaps; straighter from the poll to tail-head; possessed of large, square, level udders, whose front quarters were particularly well-developed, closely attached to the body, with teats ideally placed, but too often not only small in size but very short in length. It is stated by some authorities that a closely attached udder is very rarely found with long teats. Other characteristics of these Scotch Ayrshires were their heavy skins, broad upward-turned horns, and their color, which was white, with varying shades of red spots on the head and neck; frequently there were larger or smaller spots on the body, but, in most cases, at least, the white predominated. Furthermore, all of the cattle exhibited by the Canadians showed a uniformity of breed

character or type that was very plainly manifest to the most casual observer. It was this uniformity, as well as their distinctive showy attractiveness, that drew to the foreign cattle the attention of the visitors in the stadium, as well as that of the American breeders in and outside of the judging arena.

The judge on this occasion had been selected from Canada, and, naturally, was partial to the Scotch type. As a consequence, most of the prizes went to the Canadian exhibitors. While the American exhibitors were bitterly disappointed, the decisions made at Chicago have had a far-reaching effect in changing the type of Ayrshire cattle in America. Since that time the majority of the most progressive breeders either have made direct importations from Scotland, or have placed at the head of their herds bulls of the Scotch type. This is particularly true of those who exhibit at the leading fairs. And, when competition comes between this and the old New England type, the former nearly always wins.

The question of type had become so confusing that early in the year 1906 the officials of the American, Canadian and Scotch Ayrshire breeders' associations recognized it as worthy of their attention. The result was that they agreed on a uniform scale of points, which was intended to serve as a guide for the breeders of all three associations.

Breeders of these cattle have never practiced inbreeding to any great extent, and there are few well-defined families or strains, as in other breeds.

327. Uses for milk and butter. — In point of milk-yield alone, the Ayrshire does not compare favorably, individual for individual, with the Holstein, nor in butter-production alone with either the Jersey or Guernsey. But in the

yield of milk and butter, on rough, hilly pastures, or without heavy grain-feeding in the winter, the Ayrshire is in a class by herself. It is difficult to give figures of production that are at all representative, since as much, if not more, depends on the system of care and management as on the cow herself. From reports of a number of herds which may be considered reliable, as indicating the dairy qualities of the Ayrshire breed, it may be stated that herds numbering twenty animals, of all ages, will yield, as an average, 6500 pounds of milk and 300 pounds of butter-fat. This estimate presupposes that the herd is fed for profit, but not forced in any sense of the word. A number of herds fed a liberal allowance of grain the year round, and managed with the view of yielding the maximum amount of milk and butter, have averaged over 8000 pounds of milk and 350 pounds of butter-fat. Because the Ayrshire cow is perhaps not capable of making forced weekly, or even yearly, milk and butter records equal to those of some of the other breeds, and furthermore, because she has been so completely in the hands of practical dairymen, she has never been forced in her production in the generally accepted sense of the term. As a consequence, the cows of this breed are in a more normal condition than those of almost any other.

Because the butter-fat globules are small, the cream does not rise so quickly as in the case of some of the other dairy breeds, and as a consequence Ayrshire milk is well adapted for shipping to city markets, and for use as a beverage.

328. Other uses of Ayrshires. — It was formerly thought that Ayrshire milk was peculiarly adapted to cheese-making. With our present-day information on this subject, however, this view is no longer generally held, although the milk is used for this purpose.

As far as a dairy cow can be a beef animal, the Ayrshire probably excels, for the reason that she is a little smoother in conformation than the other dairy breeds, and the fat of the carcass, instead of being yellow, which is objectionable to the consumer, is white.

An Ayrshire bull at the head of a grade herd will greatly increase milk-production in its progeny. When used on grade cows the standard of the herd will be materially elevated.

329. Distribution. — The Ayrshires are practically the only dairy cattle in Scotland, and nearly every country in which dairying is an important industry has drawn heavily on Scotland for foundation stock. The principal countries that are using Ayrshires are Canada, the United States, Norway, Sweden, Finland and Russia. They are also found in considerable numbers in South Africa, New Zealand, Australia, China and Japan. In America, the breed is found in largest numbers in Quebec and Ontario, in Canada, but it is fast becoming popular in eastern United States, notably in the New England States, New York and Pennsylvania. There are a few herds in Ohio, Illinois, Missouri, Oregon and California.

330. Organizations and records. — The welfare and interests of this race of cattle are in charge of the American Ayrshire Breeders' Association, which was organized on its present basis in 1875. The breeders of Ayrshires, however, have done systematic work for the breed through the Association of Breeders of Thoroughbred Neat Stock, as far back as 1859. The latter organization published three volumes of a herd register. On the organization of the former association, the publication of the Ayrshire Records came into its hands. Since 1876 it has published twenty-seven volumes (new series recording over 17,000

bulls and 39,000 cows). The North American Ayrshire Register first appeared in 1875, devoted to cattle that could be traced to importation. It was discontinued in 1880, after four volumes had been published. Aside from guarding the purity of the breed, the American Ayrshire Breeders' Association also conducts a yearly home dairy test and an advanced registry. Both of these divisions of the Association's work tend to encourage the development of the breed by creating a greater interest among the members of the Association, to excel either in making official records, or in making attractive displays of their cattle at leading agricultural exhibitions. The present headquarters of the Association are at Brandon, Vermont.

There was organized in 1870 the Ayrshire Importers' and Breeders' Association of Canada, and in 1889 the Dominion Ayrshire Breeders' Association. In 1898, the former was absorbed by the latter. The Montreal Ayrshire Herd-book first appeared in 1886. It was later united with the Dominion Ayrshire Herd-book, which appeared in 1884, and published as the Canadian Ayrshire Record.

Literature. — Yearbook, published annually by the Ayrshire Breeders' Association; E. L. Sturtevant, The Dairy Cow; A Monograph of the Ayrshire Breed of Cattle, Boston (1875).

Brown Swiss Cattle. Figs. 51, 52.

By *Charles D. Nixon*

331. The Brown Swiss cattle of America are a distinct dairy breed. They have been generally known as a dual-purpose breed, but the American Brown Swiss Cattle Breeders' Association has decreed it a distinct dairy breed.

332. History. — This breed is descended from the Brown Switzer or Schwyzer cattle, established from a time beyond historic record in the mountainous country of Switzerland, especially in the Cantons of Zürich, Zug and Schwitz or Schwyz.

The first importation of Brown Swiss cattle, consisting of seven cows and one bull, was made by Henry M. Clark, of Belmont, Massachusetts, in 1869. They were subsequently sold to D. Hall, of Providence, Rhode Island, and D. G. Aldrich, of Worcester, Massachusetts. From them and subsequent importations by W. Koch and J. B. Eldredge, of New York; Scott & Harris, of Connecticut; E. M. Barton, of Illinois, and McCormick Brothers, have sprung the 2500 bulls and 3700 cows since registered as pure-bred cattle by the Brown Swiss Cattle Breeders' Association. In 1904, McLaury Brothers, of New York State, made a large importation.

333. Description. — As a breed the Brown Swiss cattle are fairly large, the cows averaging 1200 pounds and the bulls 1800 pounds, with a rugged form, covered with a soft mellow skin of unusual thickness, giving the animal a sleek appearance. The color is a shade from light to dark chestnut brown. The peculiar markings are a light tuft of hair between the horns, on the inside of the ears and a narrow line along the back. The nose is black, with mouth surrounded with a meal-colored band; a yellow strip along

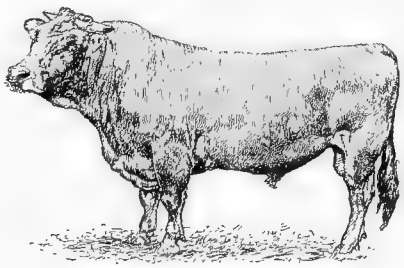


FIG. 51. — Brown Swiss bull.

the middle of the under lip crosses over to the upper lip and extends up the sides of the nostrils. The horns are of medium size and length, well set, with black tips; face dishing, with a large, full eye, denoting energy and vigor. The tail is long, with heavy black switch. The hoofs and tongue are also black. The hindlegs are straight, with thighs well cut out before and behind. The udder is large, extending well up in front and rear. The teats are large and well placed at the corners of the udder, with a beautifully formed escutcheon. The ribs are well sprung. The heart girth is large, pelvic arch high and hips broad. The short legs give the appearance of under weight, differing from other dairy breeds in that they have a stronger and more vigorous appearance (Figs. 51, 52).

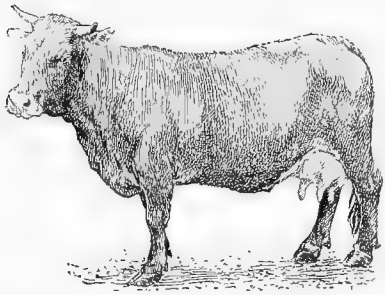


FIG. 52. — Brown Swiss cow.

334. Uses of Brown Swiss cattle. — They are persistent milkers and usually produce large averages for the year, occasionally as high as 10,000 pounds of milk and 500 pounds of butter-fat. The milk is adapted for condensing, and for butter and cheese production. They are reputed to produce more milk and butter-fat on rough feed than any of the other dairy breeds. The average per cent of butter-fat is 4.3. In 1891, the cow Brienz No. 168, at the age of twelve years, in a carefully supervised test at Chicago, made the very notable record of an average yield of 81.7 pounds of milk per day for three days, containing 9.32 pounds of butter-fat.

Brown Swiss cattle have not been popular as beef-producers in America, although they are highly prized for this purpose in Switzerland. They fatten rapidly and attain good size. They dress out about 60 per cent. The calves make excellent veal at six weeks, weighing 250 to 300 pounds. They produce a white, highly flavored meat.

The use of Brown Swiss bulls on grade cows to produce veal calves is highly recommended. They are also valuable for crossing on debilitated common stock for infusing new vigor.

335. Feeding and care. — As has been said, the Brown Swiss cattle originated in the mountainous country of Switzerland, where the feed is grass and hay alone and where grains are scarce and expensive. They grazed on the mountain side in the summer and were fed hay in the valley in the winter.

336. Distribution. — Brown Swiss cattle are in high favor in Europe, especially in Russia, Germany and Italy. In Switzerland they are the most popular milk-producing cattle. They are rather generally scattered over the United States. Some of the larger herds are now in Missouri, Illinois and Wisconsin, and are used almost exclusively for dairy purposes. They are also found in Mexico. Their ruggedness and ability to thrive on rough, sparse pastures, adapts them to a wide range of conditions.

337. Organizations and records. — The American Brown Swiss Cattle Breeders' Association, organized in 1880, cares for the interests of the breed in this country. It is made up of less than 100 Brown Swiss breeders, many of them millionaire farmers who take great pride in this stock. To date it has published three small herd-books, recording 4900 bulls and over 7000 cows.

Dutch Belted Cattle. Figs. 53, 54.

By *Frank R. Sanders*

338. Dutch Belted cattle are a dairy breed. Their native home is in Holland, where they are known as Lakenfelds, Lakenvelders or Veldlarkers, which means literally a field of white, but conveys the idea of a white body with black ends.

339. History in Holland. — The early history of this breed is not fully understood, but from the records obtainable, and from conversation with several of the oldest breeders in Holland, it seems that these cattle began to flourish about 1750, and no doubt the system of selection by which this marvelous color breeding was attained, dates back into the sixteenth century. One breeder says his father informed him that there were gentlemen of wealth and leisure near what is now called Haarlem, North Holland, who conceived the idea of breeding animals of all kinds to a certain color, chiefly with a broad band of white in the center of the body, with black ends. These noblemen had large estates, and it is said that for more than 100 years they and their descendants worked on the perfection of these peculiar color-markings, until they produced belted cattle, pigs and poultry. That these breeders were wonderfully successful, no one questions, as we have the results of their labors in the Dutch Belted cattle, Lakenvelder poultry of England and America, the Lancheswine of Holland and Germany and the Hampshire swine of America, which were supposed to originate in Hampshire, England, but undoubtedly are the descendants of the Haarlem herds of long ago. All of these breeds possess a belt, and carry out the idea of their originators in a marvelous degree.

340. History in America. — Dutch Belted cattle were first imported to America in 1838. D. H. Haight was the largest importer. He made his first importation in 1838, and a later one in 1848. His herd became scattered over Orange county, New York, until one will find a great many belted cows in every township in that county to-day. Robert W. Coleman also imported a large herd to place on his estate at Cornwall, Pennsylvania. The Dutch Belted cattle in America to-day are entirely descended from these herds. In 1840, P. T. Barnum imported a number of Dutch Belted cattle for show purposes, but shortly placed them on his farm in Orange county, New York. One heifer was imported in 1906 by H. W. Lance, of New York City, for his farm in New Jersey, but previous to that time none were brought over for more than fifty years. This was due chiefly to the very great difficulty in securing them and to the restriction against importing them. A number have been exported from this country to Canada and Mexico, and a few to Cuba. In 1893, H. B. Richards, secretary of the Dutch Belted Cattle Association, sold his World's Fair herd, numbering sixteen, and nine others to a son-in-law of President Diaz and shipped them to Mexico. Later, Richards sold twenty to William Van Horne, of Canada. Other exportations have been made. There are about fifteen hundred head in America at the present time.

341. Description. — In size, these cattle rank about with the Ayrshires, and are also much the same in general conformation, being, if anything, a little larger, and having a little more length of leg. Cows range from 900 to 1300 pounds in weight. Bulls often weigh 2000 pounds. The best types of the breed represent a highly developed dairy form, having thin necks, small heads, straight backs,

deep chests, hips and rumps high and broad, udders and milk-veins well developed, mellow skin and soft hair, and withal, a high nervous temperament. They are very quiet in disposition. The most distinctive feature of this breed is the very wonderful, pure white belt. This belt, when ideal, should be a little back of the shoulder, and a little in front of the hips, and should extend entirely around the body in a line-like appearance. The body is coal black, and these combinations of color, so beautifully blended, are the wonder of all who see them (Figs. 53, 54).

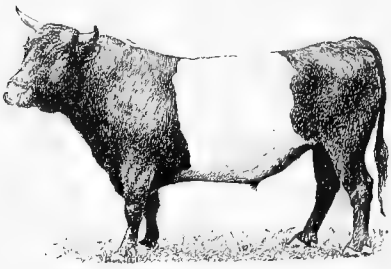


FIG. 53. — Dutch Belted bull.

342. Uses of Dutch Belted cattle. — Dutch Belted cows, as a rule, are large, persistent milkers, giving milk constantly, almost without going dry. The fact that we have many breeders of fifteen, twenty and twenty-five years' experience who are as enthusiastic as ever, speaks strongly of the merits of the breed.

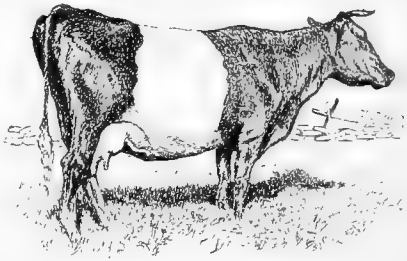


FIG. 54. — Dutch Belted cow.

In order to convey an idea of the ability of this breed in the production of milk and butter, we cite the records of the cows of some of the breeders for long periods. J. A. Holbert, of New York, at one time had a fine herd of

Dutch Belted cattle and he kept a careful record for over eight years. Twenty-five of his cows and heifers averaged about 9000 pounds yearly, fed eight pounds of grain and hay *ad libitum* in winter and pasture alone in summer. Mrs. S. A. F. Servin, one of the largest breeders, who has maintained a farm solely for profit, kept a daily record for eleven years, and twenty-five cows averaged between nine and ten thousand pounds of milk yearly. D. B. Wilson of Connecticut, who has made butter from his herd for about twelve years, says that it takes about ten quarts of milk to make a pound of butter. Cows in the Mountain Lawn Herd of New Hampshire, owned by the writer, have averaged as follows: Eleven cows made an average of 8579 pounds of milk for eight years. One cow produced 12,672 pounds of milk in one year and in six years 60,297 pounds. The average production of butter by this cow was 596 pounds yearly.

This breed of cattle has a use for ornamental purposes. Because of their unique appearance and beauty, they are constantly sought by persons of wealth who desire something novel as well as useful.

343. Feeding. — These cattle do best on a comparatively light grain ration, usually not over eight pounds properly balanced. When fed heavy they return a less per cent of profits. This is a reason, also, why Dutch Belted cattle do well in sections of country where feed is not abundant.

344. Distribution. — Dutch Belted cattle are not widely distributed, but are found in comparatively small numbers in Holland, Canada, United States and Mexico. In America the largest herds are found in the New England States and New York. The cattle are also found in Pennsylvania, New Jersey, Ohio, Mississippi and other parts

of the South, and several fine herds are being built up on the Pacific coast.

As many of these cattle have been kept successfully in northern New England for years, they have gradually assumed a hardy constitution, well adapted to withstand New England climates. There also seems to be a place for them in hilly sections, as they are active and well able to rustle.

345. Organizations and records. — The Dutch Belted Cattle Association of America was organized February 4, 1886, in New York City, and is the only organization promoting the breed in America. The Netherland General Stamboek, published at the Hague, Holland, is the foreign representative. Eleven herd-books of the Dutch Belted Cattle Association of America have been published to date recording 3600. The address of the secretary is Covert, Michigan.

French-Canadian Cattle. Figs. 55, 56.

By *G. E. Day*

346. French-Canadian cattle, or "Quebec Jerseys" as they are sometimes called, belong to the strictly dairy class. They are an American breed, developed in Canada.

347. History. — French-Canadian cattle are undoubtedly descended from cattle brought to Canada from Brittany and Normandy by the early French settlers, between the years 1620 and 1650. They are thought, therefore, to be of the same origin as the Jersey and Guernsey, and their appearance testifies to the truth of this opinion. Although the climate of the province of Quebec, where these cattle were brought by the settlers, is much more severe

than that of their native land, these little cattle showed wonderful adaptability to changed circumstances, and appear to have thriven under a rigorous climate, cold stables, coarse fare and very indifferent care and management. The result is a breed that is second to none in hardiness; and it is said that it is a very rare thing for an animal of this breed to be affected with tuberculosis.

348. Description. — French-Canadian cattle are somewhat small, mature cows weighing 700 to 900 pounds, and bulls about 1000 pounds. The rules for registration contain the following statements regarding color: "The color for cows may be black or brown, or dark brown, with or without a yellow stripe along the back and around the muzzle, or a gray stripe around the muzzle. The color may also be fawn or brindle. The color for bulls may be black or brown, or dark brown with or without a yellow stripe along the back and around the muzzle, or a gray stripe around the muzzle. Females may have a little white under the belly, on the forehead or in the switch, and bulls a little white under the belly or in the switch. The horns must be white with black tips or black with white tips." In general appearance they resemble the Jersey, but have less of the deer-like appearance possessed by the Jersey, and are somewhat more rugged in appearance. The type is lean and muscular, and the cows tend to be wedge-shaped (Figs. 55, 56).

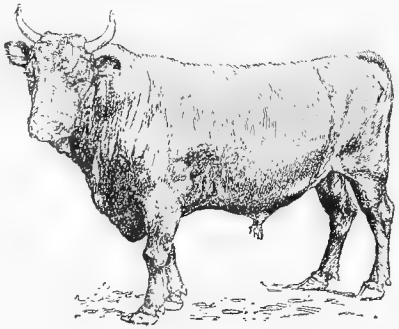


FIG. 55. — French-Canadian bull.

349. Uses of French-Canadian cattle. — The French-Canadian is a strictly dairy breed. As yet, milk and butter records for the breed are not very numerous. Generally speaking, in quantity and quality of milk they resemble the Jersey. At the Central Experimental Farm, Ottawa, Ontario, in 1903, a French-Canadian cow made more butter and gave a larger profit than any other pure-bred cow in the herd, including Ayrshires, Guernseys and Shorthorns. In 1904, in the same herd, three French-Canadian cattle made more butter and gave a larger profit than the three best cows of any other breed, including Ayrshires, Guernseys and Shorthorns. The yearly product per cow of these three cows was 8340 pounds of milk, testing 4.52 per cent, or 442.64 pounds of butter. The total yearly profit per cow above cost of feed was $56.24. In the Pan-American test, the five French-Canadian cows stood sixth in total profits from butter and gain in weight, but in percentage of profit on value of food, they led all breeds. A record of performance has been established in connection with the breed, the first cow to qualify under the rules producing, in eleven months, 7488 pounds of milk, and 332.8 pounds of butter-fat. It will be seen, therefore, that the French-Canadian cow possesses dairy qualities of no mean character.

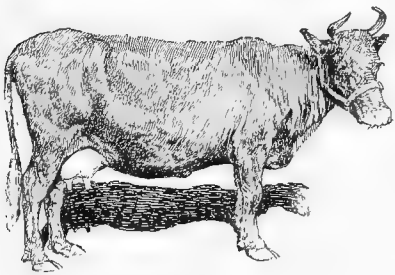


FIG. 56. — French-Canadian cow.

The use of the French-Canadian bulls on native cows should be especially appropriate in the Northeast, where

dairying is a specialty, and no doubt the offspring would show increased vigor over the dams, and in many cases the cows would yield milk richer in butter-fat.

350. Management. — One of the most remarkable things about French-Canadian cattle is the degree of excellence as dairy cattle which they have retained under generations of unskilled selection, bare pastures in summer, and, as a rule, a winter ration of nothing but straw. But they respond readily to more liberal treatment. The application of well-known principles of breeding, and the following of a judicious system of feeding, should render the French-Canadian a really prominent dairy breed.

351. Distribution. — As might be expected, the headquarters for this breed is the province of Quebec, where they are popular with the French-Canadian farmer, or "habitant." It is only within comparatively recent years that the breed has become known to the outside world. The entering of five cows in the Pan-American dairy test, where they gave a remarkably good account of themselves, served to advertise the breed more than any other circumstance, and they are now to be found in several states of the Union, as well as in the provinces of Ontario, New Brunswick, Nova Scotia and Prince Edward Island. They have also established themselves on the island of Anticosti. These cattle should prove of value on the hills of northeastern United States, especially in New England, New York and Pennsylvania. As yet, however, the number of herds outside of Quebec is comparatively small, and it is difficult to say just how far these hardy little cattle may extend their domain.

352. Organizations and records. — The first organization in the interests of French-Canadian cattle was formed in 1886, and a record was established to enter foundation

stock. The record was placed in the hands of a commission appointed by the Quebec government. In 1895, this record was handed over to the French-Canadian Cattle Breeders' Association, organized by J. A. Couture, Quebec, who is still secretary of the Association. In 1896, the Foundation Herd-book was closed, and since that time only the progeny of recorded animals have been accepted for registration. In the Foundation Herd-book there were recorded 5307 females and 922 males. In 1905, the old "French-Canadian Cattle Book" was taken over by the Canadian National Live-Stock Records.

CHAPTER X

THE DUAL-PURPOSE BREEDS OF CATTLE

If kept true to type, individuals representing this group of breeds are larger than dairy cows, have an ample, blocky form, approaching that of the beef steer, yet with an udder development superior to that found in any but dairy cows.

Red Polled Cattle. Figs. 57, 58.

By *H. A. Martin*

353. Red Polled cattle are a dual-purpose breed, ranking very highly in both milk- and butter-production.

354. History in England. — Hornless or polled cattle have existed in the county of Suffolk, England, from time immemorial. The probability seems to be that they were introduced soon after the Roman occupation. Bede says that the people who settled in eastern England after the Romans had gone, brought with them slaves, their cattle and all their live-stock. Certain it is the breed has existed in Suffolk as far back as we can trace the history.

Of the Norfolk strain of the breed, H. F. Euren, in the account prepared for the herd-book, says: "The files of the Norwich Mercury show that as early as the year 1778, there were whole dairies of polled cows in Norfolk." In the advertisements of that and succeeding years, sales of

polled cows and bulls are specially referred to. Money Griggs, of Gately, who died in 1872, in his hundredth year, and who had been for upwards of eighty years a tenant of the Elmham estate, informed Mr. Fulcher, when making inquiries as to the breed, that "from his earliest recollection Red Polled cattle had been kept in the neighborhood of Elmham."

355. History in America. — There seems little doubt that our so-called native muley cows are descendants, more or less mixed with other strains, of the Norfolk and Suffolk cows brought over by the early emigrants from that section. They have been preserved from extinction by the persistence of their good qualities. The persistence with which the old Suffolk traits are transmitted, under what would seem most adverse conditions, finds a striking illustration in what were known in Massachusetts as Jamestown cattle. In 1847, during the famine in Ireland, the people of Boston sent a shipload of provisions to that country to relieve the distress. As a slight token of appreciation, a Mr. Jeffries, living near Cork, presented to the captain a Suffolk polled heifer. She was delivered by him to the donors of the provisions, and was sold at auction for the benefit of the fund. She proved a remarkably fine milker, and her progeny (mostly bulls, by what were then known as Alderney sires) were used largely in the dairy herds about Boston. The progeny of these half-blood Suffolk bulls were nearly all hornless, and were so superior to the ordinary cattle of the district as to become noted. They were known as Jamestown cattle, from the name of the vessel in which the heifer came over. At several local fairs they were shown in considerable numbers.

The first regular importation of Red Polled cattle for

breeding purposes was made by G. F. Taber, of New York, in 1873. This importation consisted of a bull and three heifers. In 1875, he imported four more cows, and in 1882, three bulls and twenty-three heifers. From this time, the number brought over increased rapidly from year to year, until the prices on the other side became so high that the business was unprofitable.

356. Description. — In general, the bull is strong, impressive, low-set and of good carriage, and weighs 1800 to 2000 pounds, when mature and finished. The cow is of medium wedge-form, low-set, with top and under lines straight, except at flank, and weighs 1300 to 1500 pounds when mature and finished (Figs. 57, 58).

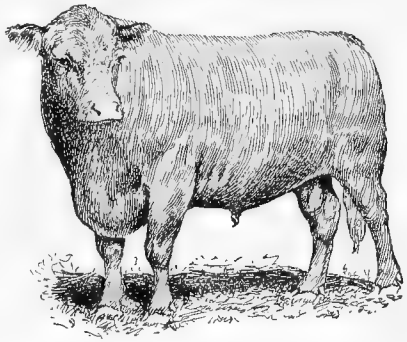


Fig. 57. — Red Polled bull.

357. Types. — Breeders of these two types, striving to produce good dual-purpose animals, that should be polled and red-colored, gradually worked toward the same type. Mr. Euren says: "The year 1846 may be taken as the date from which the Norfolk and Suffolk varieties merged into each other, so as to be spoken of as one and the same breed." There was a friendly rivalry between the two counties at the agricultural shows, and a constant interchange of the best blood, with a resulting improvement and similarity in the two strains. After an exhibit at Battersea in 1862, when it was noted that the best forms of the two types were

of the same kind, the name Norfolk and Suffolk Red Polled cattle was given them. Later, about 1882, the first part was dropped, since which time the cattle have been known simply as Red Polled.

Suffolk Red Polled cattle. — This type was characterized by a thin, clean head; clean throat with little dewlap; thin legs; a large frame; rib tolerably springing from the center of the back, but with a heavy barrel; backbone ridged; udder large, loose and creased when empty; milk veins remarkably large, and rising in knotted puffs. It was the dairy type, and was remarkable for the large and uniform yield of milk. It was developed in the county of Suffolk, England, at a very early date.

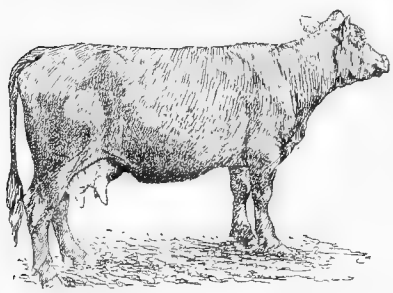


FIG. 58. — Red Polled cow.

Norfolk Red Polled cattle. — This type was characterized by small bones, short legs and round barrel, with good loins, and the head rather fine. It was a hardy, thriving strain, maturing at an early age and making a superior quality of flesh. It was the beef type and had poorer milking qualities than the Suffolk. It was developed at an early date in Norfolk county, England.

358. Uses of Red Polled cattle. — The Red Polled cattle are a dual-purpose breed, and we find that they have made a large number of very creditable records, both in dairy tests and in slaughter tests.

For milk and butter. — The cows give a good flow of milk, which tests well, and milk right up to calving if

allowed. Some results of tests may be given to illustrate this point. The following dairy tests have been made at state fairs. At the Ohio State Fair a three-days' test resulted as follows: The cow Queen Bess 20335 gave 99 pounds of milk and 5.316 pounds of fat; the cow Miss McKinley 17203 gave 82.7 pounds of milk and 3.843 pounds of fat; the cow Cassandra 2d 16305 gave 92.1 pounds of milk and 3.48 pounds of fat. At the Illinois State Fair, in a three-days' test the Red Polled cow Olena 18772 gave 128.4 pounds of milk and 4.533 pounds of fat. The next highest cow of any breed in the show made 4.234 pounds of fat. At the Wisconsin State Fair, in a three-days' test the Red Polled cow Olena 18772 gave 125 pounds and 12 ounces of milk, and made 5.336 pounds of fat. The cow 24888 Pear made a record in twelve months of 13160.6 pounds of milk and 603.66 pounds of butter-fat. Jean Duluth Beauty, 31725, 1 yr., 20280.6 pounds milk and 891.58 pounds fat.

For beef. — The steers make a good growth, are ready for market at an early age and furnish a very fine quality of meat. The following slaughter tests, made at the International Live-Stock Exposition, show the standing of the Red Polled cattle in meat-production: For two-year-olds (1906), the highest yield was made by an Aberdeen-Angus, dressing 69.5 per cent; the next highest was a Red Polled, dressing 69.2 per cent. For yearlings (1906), the highest yield was a Red Polled, dressing 67.5 per cent; the next highest was a Hereford, dressing 67.1 per cent. For two-year-olds (1907), the highest yield was made by an Aberdeen-Angus, dressing 66.9 per cent; the next highest was an Aberdeen-Angus, dressing 66.64 per cent; the next was a Red Polled, dressing 66.6 per cent. In this test were fifteen entries.

For crossing and grading, Red Polled bulls have been used extensively and with good results. They transmit the color and polled character uniformly, and may be used profitably on either dairy or beef common stock. They cross well with Shorthorns.

359. Distribution. — In England, we find the Red Polled cattle in their native counties of Norfolk and Suffolk. They are also found in South America, Australia, Russia, South Africa, New Zealand, Canada and the United States. In America we find the greatest number of Red Polled cattle in the Mississippi valley, in the states of Ohio, Indiana, Illinois, Wisconsin, Michigan, Minnesota, Iowa, the Dakotas, Kansas, Nebraska and Missouri. We also find them on the Atlantic coast, the Pacific coast and in Texas. In the last-named place they are very numerous and do exceptionally well.

360. Organizations and records. — The Red Polled Society of Great Britain and Ireland was organized in 1888, at which time it took up the publishing of the Red Polled Herd-book, which had been published by H. F. Euren since 1874. The Red Polled Cattle Club of America was organized at Chicago in 1883. The first volume of its herd-book appeared in 1887, since which time twenty-seven volumes have been issued recording 69,000 cattle. Until 1901, the American Red Polled Herd-book included all of the cattle entered in the English series. At present only cattle grown in this country are published in the American series. There are several state associations in America devoted to the breed.

Devon Cattle. Figs. 59, 60.

By *L. P. Sisson*

361. The Devon is a dual-purpose breed of cattle, containing both beef and dairy types. Because of the bright red color the animals are sometimes called "Rubies."

362. History in England. — From time immemorial there has been known in the south and west of England and on the borders of Wales, especially in the county of Devon, a breed of cattle of uniform red color, rather long and graceful horns, well-rounded and symmetrical bodies and straight, broad backs, rather lighter in bone than some other breeds and shorter in the legs, thus possessing many of the characters of the present-day Devon. They were gentle and hardy, active and accustomed to gaining their living while roaming over the bleak moors or rocky hills of their rough native country. Here they were known as the "red" cows. They were the main reliance of their owners for dairy products. These mountain-bred cattle were sought after as "feeders" in Devon, Cornwall and Somerset, as well as in Hereford.

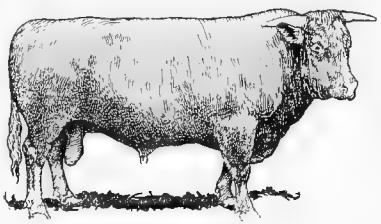


Fig. 59. — Devon bull.

Among the early breeders of importance should be mentioned the Quartly and Davy families, through whose efforts the Devons were greatly improved. For several generations the Quartly family devoted themselves to improving the Devons, and Francis Quartly, who began

his work in 1793, stands preëminent among Devon breeders. The best blood in the breed has descended from his herd. John Tanner Davy began the improvement of a Devon herd left to him by his father in 1790. On his death in 1852, his son, Colonel Davy, continued his work, and became foremost among Devon breeders of the time. The latter did a great deal to popularize the breed by his writings and by his personal efforts.

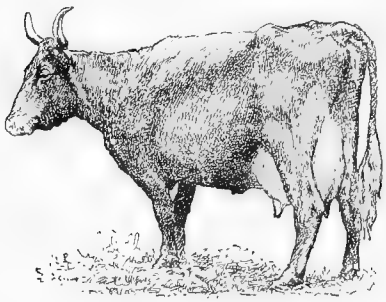


FIG. 60. — Devon cow.

363. History in America. — The exact date of the first importations of Devons is uncertain, but it is thought that a few head were brought to America in 1623 by the colonists. Beginning with an importation in 1800 to Massachusetts, several importations were made, the most notable being in 1817, when six pure-bred heifers and a bull were received by Robert Patterson of Baltimore. The Pattersons made later importations, and were in no small way responsible for the development of the breed in this country. Other breeders imported Devon stock into United States and Canada, but the breed has not become very popular, despite the fact that it is worthy.

364. Description. — In general, the Devons are a docile but hardy breed of cattle, well adapted to thrive on short and hilly pasture, while at the same time responding to good care (Figs. 59, 60).

365. Types. — Two types of Devon cattle have been developed. The North Devon, a hardy, compact type, is

probably the original form. The animals are smaller, and have been developed for beef-production primarily. The South Devon, a larger and coarser type, has been developed for both meat and milk, and is now almost a distinct breed.

366. Uses of Devon cattle. — While the Devons are not primarily dairy cattle, still some splendid milk-producers have been developed. Although the quantity of the milk-yield is not large, the quality is good, which gives them definite value for butter-making. As a rule they possess well-shaped udders.

For beef. — A chief recommendation of the Devon for beef is that it dresses with little waste, and the meat is of very superior quality. The animals make good gains under stall-feeding but cannot be forced to so great an extent as some of the other beef breeds, and generally are lighter when marketed. The breed is small, which has sometimes militated against it for meat purposes.

For oxen. — The superior intelligence, quick and active movements and great strength of the Devons render the oxen among the best known and handsomest in the world. Their rapid gait and firm step, together with the ease with which they are trained, have gained for them this superiority.

For grazing. — As grazers, the Devons stand in the first rank, as they are active and hardy, and have been accustomed to rustle on light, hilly pastures.

For crossing. — Prepotency is a characteristic of Devon cattle due to their pure breeding for so long a period. When crossed on grade cows the results are very satisfactory for both meat- and milk-production.

367. Distribution. — The Devon cattle are widely distributed, being found scattered through the south of

England, in Ireland, South Africa, parts of Australia, Tasmania, New Zealand, the West Indies and in Canada, United States and Mexico. The breed is now represented in every state in the Union with few exceptions, but is most numerous in New England, New York, Pennsylvania, Ohio, Illinois, Wisconsin and Texas. Virginia, Maryland, the Carolinas, Georgia and Alabama each have many herds. It is well adapted to warm climates.

368. Organizations and records. — In 1851, Colonel Davy issued the first volume of the English Devon Herd-book, other volumes being put out from time to time until 1881, when seven volumes had been published. The Devon Cattle Breeders' Society, organized in 1880, bought the Herd-book in 1884, and has since increased it to thirty-eight volumes. The South Devon Herd-book Society was organized in 1890. It also published a herd-book. The first volume of the American Devon Herd-book appeared in 1863, and in 1879 the fifth and last volume was issued. In 1881, volume one of the American Devon Record was published, seven other volumes having appeared since. Yearbooks have also been issued. The official organization for the promotion of the interests of the breed in this country is known as the American Devon Cattle Club, with the secretary's office at Charlottesville, Virginia.

Literature. — James Sinclair, History of the Devon Breed of Cattle, London (1893).

CHAPTER XI

LESSER KNOWN BREEDS OF CATTLE

By *Carl W. Gay*

At this point we may bring together very brief accounts of some of the breeds that occupy a minor place in this country, although they may not be closely related to each other.

369. Kerry cattle have been developed by and in the interest of the Irish tenant farmers, and are, therefore, most economical producers and endowed with unusual hardihood.

The true Kerry, distinguished from the Dexter-Kerry, is a pony dairy cow, usually black in color, though occasionally red (Fig. 61). Their appearance is more rugged than refined, and their size is smaller than that of any other bovine. They stand from 36 to 40 inches high and weigh from 500 to 600 pounds in the case of cows and up to 1000 pounds for bulls. The most distinguishing characteristic of the Kerry, after size, form and color, is their long, rather straight, fine white horn with a black tip.

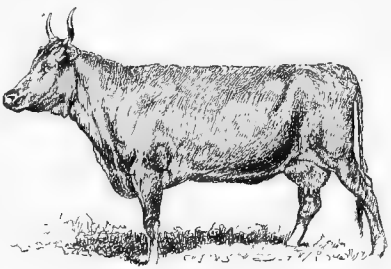


Fig. 61. — Kerry cow.

Some Kerrys produce a remarkable amount of milk considering their size. They have not been especially well

received in this country, their usefulness being somewhat restricted. They seem best adapted to the requirements of small families who desire to keep a cow for their own use, but do not care for the amount of milk yielded by a larger cow.

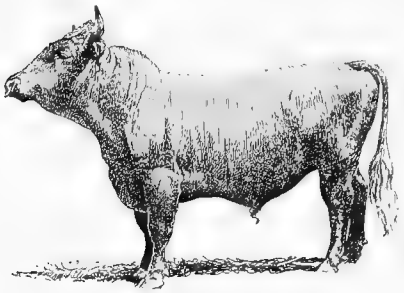


FIG. 62. — Dexter-Kerry bull.

370. Dexter-Kerry cattle. — The Dexter-Kerry is a dual-purpose derivative from the true Kerry, the prefixed name being that of the man in whose hands they were first bred. They are miniature beef cattle which kill well, yet they have some dairy capacity. They are as small or smaller than the true Kerry and are of less uniform color, being red and roan as well as black (Fig. 62).



FIG. 63. — Brahmin bull.

371. West Highland cattle. — The West Highland cattle or Kyloes, as they are commonly called, are native to the Highlands of western Scotland. It is a very old breed, but has not been extensively taken up outside of the district to which it is native. Kyloes have the distinction of dressing the highest quality carcass, but their small size and the fact that they feed and finish slowly renders them of little economic value in competition with the great beef breeds.

The limited number that have come to this country have been imported more for ornamental than practical purposes. Their appearance is more picturesque and attractive, with their extremely heavy coats of yellow, red, brindle or black hair, their long, spreading horns and their alert, active demeanor.

372. Brahmin, Zebu or sacred cattle of India (Fig. 63). — While these cattle are usually thought of as exhibits in zoölogical gardens and menageries, they have some economic importance. In the South, especially Texas, Brahmin bulls are bred to native or even grade beef-bred cows in the belief that the one-half- or three-quarter-breds do better than the improved cattle on account of their greater resistance to parasites, flies, ticks and the heat.

373. Simmenthal. — This is a Swiss breed named from the valley of the Simme. They are triple-purpose cattle used for milk, beef and work. It is customary to work the steers one or two seasons before they are turned off for beef. They are large, of rugged appearance and of rather beefy form. The color is a peculiar light shade of fawn or drab with some white markings.

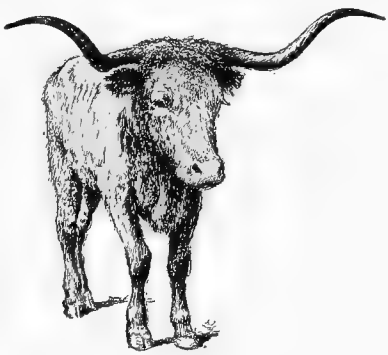


FIG. 64. — Texas Longhorn.

374. Longhorn cattle (Fig. 64). — This is an ancient British race of cattle most notable on account of its having been the object of Robert Bakewell's practice of his theories of breeding for improvement. It was the leading beef breed until deposed by the Short-

horn in the latter part of the eighteenth century. Longhorns are no longer bred in a practical way, but few representatives of the true type being extant at the present time.

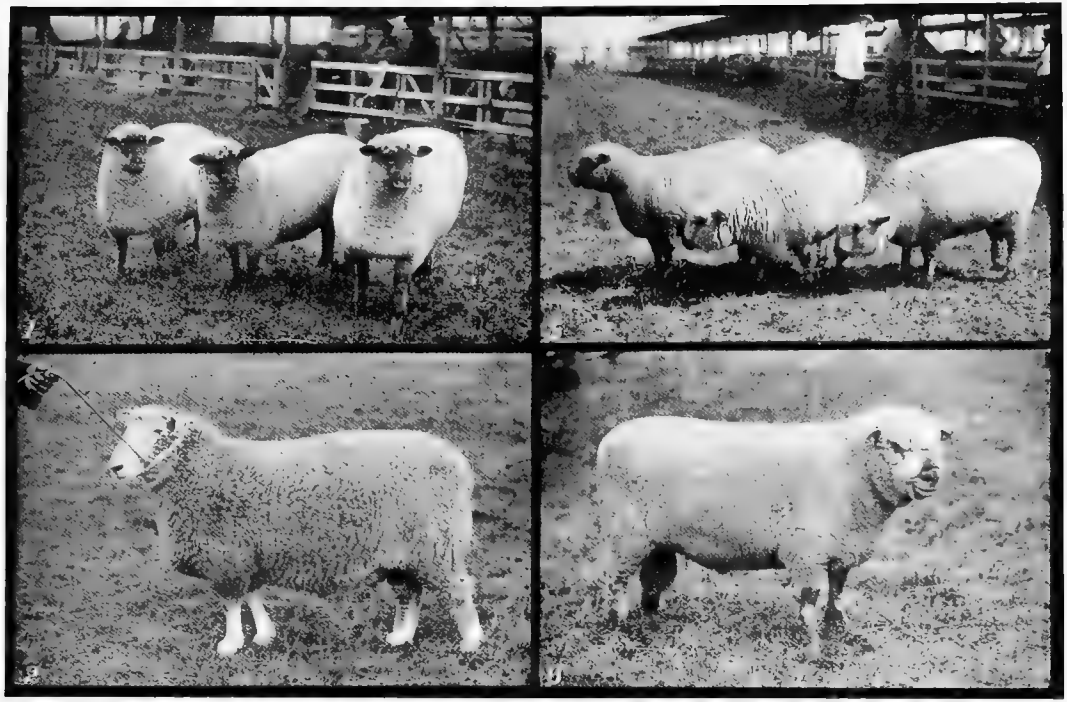
The Texas Longhorn was the earliest race of cattle to inhabit our western ranges, being descendants of the Spanish stock introduced into Mexico. Their blood has been bred out by grading up with pure-bred bulls.

PART III

THE BREEDS OF SHEEP AND GOATS

- Mutton Sheep (p. 329)
  - Middle Wool
    - Southdown
    - Shropshire
    - Oxford
    - Hampshire
    - Suffolk
    - Dorset-Horn
  - Long Wool
    - Cheviot
    - Leicester
    - Lincoln
    - Cotswold
- Wool Sheep (p. 362)
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    - Delaine Merino
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  - Angora
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- Lesser Known Sheep (p. 381)
  - Barbados or Woolless
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  - Herdwick
  - Persiacot and Persiarino
  - Romney Marsh
  - Ryeland
  - Tunis
  - Wensleydale

PLATE XII. — Breed Types of Sheep.



1. Oxford Down Ewes.
2. Romney Marsh Ram.
5. Shropshire Ewes.
6. Shropshire Ram.

CHAPTER XII

THE MUTTON BREEDS OF SHEEP

Sheep in this group vary considerably in the matter of scale but are all of the block form already described in reference to the beef cattle. However, the leg of mutton in the sheep carcass has a greater proportionate value than the round of the beef carcass, so that this region in addition to the back and loin receives special consideration from the sheep judge.

Southdown Sheep. Figs. 65, 66.

By *H. P. Miller*

375. The name Southdown as applied to sheep arose from the use of the term in referring to the low range of chalk hills in southeastern England, in Sussex county, where the breed was developed. The date at which it was first used is not known, but in 1794, Arthur Young, in an essay, brought the breed into prominence. The breed ranks in the first place for mutton-production.

376. History in England. — The Southdown breed was developed through selection from the native Sussex sheep on the chalky downs of southeastern England. The native sheep were small, ill-shaped and coarse-wooled. About 1780 or earlier, John Ellman, doubtless taking inspiration from the success of Bakewell with the Leicester,

began the development of the breed, striving for better mutton form and constitution, and at the same time to improve the fleece. He made rapid progress in fixing the present features of the Southdown. About 1820, Jonas Webb began breeding Southdowns with a selection from the Ellman and other flocks, and he proved to be the genius among the breeders. He built on Ellman's foundation, and produced this superior mutton sheep, of larger size and better feeding quality. The Southdown was thus the first of the Down or middle-wool breeds to be improved, and has been employed in the development of the other Down breeds, particularly the Shropshire, Oxford and Hampshire. It early became the breed of the English royalty and aristocracy, and remains so to the present time.

377. History in America. — The first authentic importation into America was by Dr. Rose, of Seneca county, New York, in 1803. The sheep of this importation, however, were crossed with Merinos in 1813. In 1823, Sidney Hawes, of New York, made another importation and sold thirty-six ewes and two rams to C. N. Bement of Albany. In 1834, Francis Rotch, of Otsego county, New York, imported six ewes and a ram from the Ellman flock. In the same year, Isaac Maynard, of Coshocton county, Ohio, made an importation. During the forties and fifties of the same century, while wool was very low and Merinos falling into disfavor, Southdowns became disseminated very widely. With the revival of interest in Merinos from the high prices for wool following the Civil War, Southdowns fell into disfavor, and because of their low wool-yield and the relative importance of wool in this country, they have not regained wide popularity in the North or on the ranges. South of the Ohio river, however, es-

pecially in Kentucky and Tennessee, they were for many years the prevailing breed, and are still popular.

378. Description. — It is the smallest of the Down breeds that are prominent in America at this time, but it is the model in form toward which all other breeds are tending. Its compact form and short fleece, however, give it a weight greater than its appearance suggests. Mature ewes weigh up to 150 pounds, and rams up to 200, although average weights are somewhat less (Figs. 65, 66).

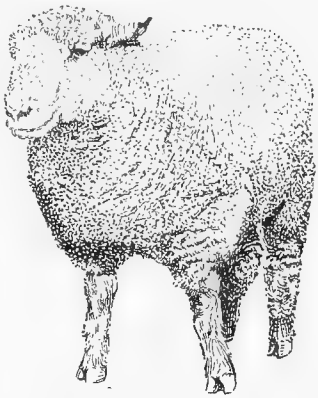


FIG. 65. — Southdown ram.

In 1788, Arthur Young wrote: "The true Southdown, when very well bred, has no horns, a long speckled face, clean and thin jaw, a long, but not a thin neck, no tuft of wool on the forehead, which they call owl-headed, nor any fringe of wool on the cheeks, thick in the shoulder, openbreasted, and deep; both fore- and hindlegs stand wide; round and straight in barrel; wide on the loin and hips; shut well in the twist, which is a projection of flesh on the inner part of the thigh that gives a fullness when viewed behind, and makes a Southdown leg of mutton remarkably round and short, more so than other breeds; thin speckled

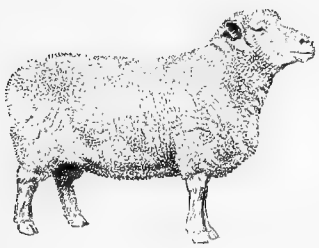


FIG. 66. — Southdown ewe.

legs free from wool; the belly full of wool; the wool close and free from projecting or strong fibers. Those flocks not bred with particular care are apt to be coarse wooled on the back."

The Southdown of to-day presents some contrasts to this: It is characterized by very short, straight legs, set wide apart; broad, level back, very thickly fleshed; long and broad hips, with tail setting very little below level of back; short neck, very thick at shoulder and sharply tapering toward head; the head small, but comparatively broad and flat between the ears; forehead full; face short and in ewes somewhat dished; eyes very prominent; ears small, carried above the level and covered, the English association says, with wool, while the American says with fine hair. The face and legs are now a uniform reddish brown, except some lingering white hairs about the nose. The face has a lively expression, in keeping with the quick movements of the Southdown. The hind-quarters carry down very heavy; the twist is extremely deep and full; the breast very broad and prominent; both fore and hind flanks very full, thus giving an almost straight under-line. The hoofs are often black. They are of thin yet firm horn, making a good foot. There is now a large cap of wool on the forehead, and on many specimens the wool is working farther down on the legs. A bright pink color of skin is desired, and is uniformly found with healthy individuals. The Southdown may safely be said to be the hardiest of all the English breeds under American conditions and methods. It is freer from catarrhal troubles and does not so quickly succumb to the ravages of internal parasites. In these particulars it approaches the Merino.

379. Uses of Southdown sheep. — Southdown rams prove highly satisfactory for mating with the long-legged

mountain ewes for the production of mutton lambs. Pure-breds are also in favor for production of lambs to be sold at weaning time. The rams bred to Merino ewes produce highly satisfactory lambs for feeding off at eight to ten months of age. They produce a high quality of mature mutton, as they do not develop fat in bunches. The ewes are not suited for growing winter lambs, as they will not breed at the right season, but the rams are very satisfactory for siring such lambs. The lambs are good feeders and mature rapidly. Single lambs are the rule, but a flock of ewes usually produces 125 per cent of lambs. Southdowns have rarely been known to produce triplets.

The Southdown has the shortest and finest wool of any of the Down or middle-wool breeds. The attempt has been to develop a fleece with a compact, smooth surface, that is, without spiral tips on the locks of wool. The average weight of the fleece for ewes is about six pounds, and for rams about eight pounds. The wool grades as one-half and three-eighths.

380. Distribution. — The general adaptability and good grazing qualities of the Southdown, together with its superior mutton, have led to its wide dissemination. In America it has been especially popular in the Central-East and South, although it is found in practically every state and territory in the Union and in Canada. In South America it is found in Argentina, Chile and other countries. It has been introduced throughout Europe, Asia, Japan, Africa and Australia.

381. Organization and records. — English and American record associations were organized in 1882. The Southdown Sheep Society has headquarters in London; the American Southdown Breeders' Association, with headquarters at Springfield, Illinois, has issued fourteen

volumes of its flock-book registering over 32,000. The latter has registered sheep from nearly every state in the Union.

Shropshire Down Sheep. Plate XII.

By *H. P. Miller*

382. The name Shropshire, as applied to sheep, was derived from the county of that name in England where the breed was developed. The breed is officially known as Shropshire Down, but the name is often abbreviated to Shrop. It is a mutton breed, or perhaps we may properly consider it a general-purpose breed.

383. History in England. — Its friends claim for the Shropshire an equally remote origin with the Southdown. The name, as applied to sheep, is mentioned in English literature as far back as 1341, there being at that time a grade of wool designated as Shropshire. The breed had not taken on many of its present characteristics, however, a century ago, as Plymley, in his "Agriculture of Shropshire," published in 1803, described the sheep of that country thus: "There is a breed of sheep in Longmynd, with horns and black faces, that seem an indigenous sort. They are nimble, hardy and weigh about ten pounds to the quarter when fatted. Their fleeces weigh about two and one-half pounds." Wilson, in his Journal of the Royal Agricultural Society, Vol. XVI, states that when the Bristol wool society, in 1792, procured all the information available regarding sheep in England, it reported that on Morfe Common there were about 10,000 sheep kept during the summer that had black, brown or spotted faces, a superior quality of wool, and were con-

sidered a native breed. These are accepted as the progenitors of the present Shropshire, although it is a common belief that the Southdown was used to hasten the improvement. It is thought, also, that the Leicester and Cotswold were used to increase the size and amount of wool, and that the sheep from Cannock Chase, in the county of Stafford, were used in the early breeding efforts. Samuel Meise, of Barrington, and George Adney, of Harley, were among the most successful of the early improvers. The Shropshire first attracted attention at the Royal Agricultural Society Show, in 1855; and in 1859 it was recognized as a distinct breed and given a class.

384. History in America. – The first American importation on record was made into Virginia, in 1855. In 1860, Samuel Sutton introduced a number of ewes and a ram into Maryland. In 1862 and again a few years later, flocks were established in New York. They had made their way into Canada also, as they are reported to have been taken from Canada to Michigan in the early seventies. There were large importations in the early eighties. The American Record Association was organized in 1884, at Lafayette, Indiana.

385. Description. — The Shropshire now has uniformly dark brown face and legs, is 10 to 15 per cent heavier than the Southdown, the standard weight for rams being 225 pounds and for ewes 175 pounds. Many, however, exceed these weights by fifty pounds when in show condition. It has a broad head, short face, thick, muscular neck, closely knit shoulders, symmetrical body, somewhat barrel-shaped, except that it is straight on the back. In form it is not so good in the thigh and twist as the Southdown. In general outline, it is taller and more rangy, but the present tendency is toward the Southdown in form.

The Shropshire is possessed of great fecundity, early maturity and quick-fattening qualities (Plate XII).

386. Uses of Shropshire sheep. — Their good mutton form and quality and profitable wool production make the Shropshires the great American sheep after the Merinos, in their Delaine and Rambouillet forms. They have a much longer, more open and coarser fleece than the Southdown, are covered more extensively over the head and legs, and yield perhaps 50 per cent more wool. Ewes average eight pounds or more and rams twelve pounds of fleece. The fleece is of good fiber and carries considerable oil. They are hardier than the larger breeds, although yielding to the Southdowns in this particular. The lambs may be profitably marketed at any time from five to twelve months of age, though usually the earlier they are marketed the greater the profit. The rams are very generally used on Merino and native ewes for the production of high-class mutton lambs.

387. Distribution. — Shropshires are now recorded from almost every state in the Union and from Canada, and far exceed in numbers any other English breed in America. They are more popular in the North and East, not being extensively found on the ranges. They do best on good pastures, as their rustling qualities are only medium. They are found very generally throughout England and her colonies and, in fact, throughout the civilized world, especially in Europe, Africa, Australia and South America.

388. Organization and records. — In 1882, the English Shropshire Sheep Society was organized. The first volume of its flock-book was issued in 1884. The American Shropshire Sheep Association was organized in 1884, and has issued twenty-six volumes of its flock-book, registering

405,000 sheep. There is also a National Shropshire Association that has issued one volume of its flock-book.

Oxford Down Sheep. Plate XII.

By *H. P Miller*

389. The name Oxford as applied to sheep is derived from the county of Oxford, England, where the breed was developed. The Oxford Down is a typical mutton breed of sheep.

390. History in England. — About 1829, John T. Twynham conceived the idea of developing a new breed of sheep combining the good qualities of the long-wools and the Down breeds, by mating the most compact Cotswold rams obtainable with his Hampshire ewes. A few years later, Samuel Druce and Wm. Gillett began a similar system of crossing, although introducing Southdown blood to some extent. The Hampshire, however, was the chief source of Down blood used in the new breed. The cross soon became popular, and several other persons undertook the same line of breeding or used the cross-bred rams so that there was no necessity for in-and-inbreeding; and it does not appear to have been employed to the extent that it was in the case of the Southdown. There is no definite record as to how long the cross-breeding was continued, but, in 1853, Druce wrote that he had no difficulty in keeping the form and size of the animal as it should be, and the wool of a desirable quality and not deficient in quantity. Up to 1857, however, it was known as Down-Cotswold, but in that year the name "Oxfordshire Down" was adopted. A little later it was changed to Oxford Down, and these sheep are now generally referred to as

Oxfords. They were first exhibited at the Royal Agricultural Society Show in 1851, but a separate class was not granted them until 1862. That may be taken as the date when they became a recognized breed with a fixed type.

391. History in America. — This breed had gained enough recognition by 1846, so that it was in that year imported to America by Clayton Reybold, of Delaware. In 1853, small flocks were brought to Virginia and Massachusetts. The following year, J. T. Andrew, of West Cornwall, Connecticut, imported a flock that spread the fame of the breed. In 1857, Andrew sold a small flock to Messrs. Smith, of Middlefield, Massachusetts, and to C. L. Whiting, of Granville, Ohio. In 1859, Andrew sold a flock to C. G. Forshay, of Texas. Interest in the breed then subsided, and did not revive until about 1880. W. A. Shafer, of Ohio, R. J. Stone, of Illinois, Geo. McKerrow, of Wisconsin, and Robert Miller, of Ontario, in the next few years imported large numbers and disseminated them widely through the United States and Canada.

392. Description. — The Oxford is the largest of the Down breeds. It stands very much higher than the Shropshire, is more rangy, straighter on the under-line, and has longer and coarser fleece than any other of the group. Being a cross-bred sheep of rather recent origin, the type is not so well established as with the other Down breeds. Some specimens are coarse and rather open in fleece, and others finer and more compact. From the Hampshire line of ancestry, it inherits a tendency to dark or bluish skin and black spots and hairs in the fleece, which are very objectionable. However, it is being rapidly improved in these particulars. The Oxford Down has a

very stately appearance and is a very attractive sheep. The color of face and legs is a darker brown than that of the Shropshire, but it is often flecked with gray, which may even predominate on the nose (Plate XII).

The ewes are very prolific, probably more so than any other breed, even triplets being not uncommon. They are heavy milkers. The lambs grow very rapidly and are of good form, and the ewes yield large fleeces. The one shortcoming of the breed is that it does not seem hardy under American climatic conditions. It succumbs easily to invasions of internal parasites and to pulmonary disorders.

393. Uses of Oxford sheep. — Oxfords are especially useful to produce mutton lambs to be marketed in the early summer, at four to five months of age. Under high feeding the ewes of many families will produce 150 per cent of lambs. The rams are well adapted for mating with smaller breeds for the production of lambs to be fattened at eight to ten months of age. There is a considerable demand for pure-bred rams for this purpose. Oxfords will yield about 10 per cent more wool than Shropshires that is rather coarse in quality and of long staple. They produce longer and coarser wool than any other Down breed.

394. Distribution. — This breed is found most largely in the states east of the Mississippi river and north of the Ohio river, and in Canada, appearing not to be suited to range conditions. It has spread from its original territory in England to almost every country where other English breeds have gone, which includes most of the leading live-stock countries. It is adapted to small farms where intensive methods are practiced.

395. Organizations and records. — In 1881, the American Oxford Down Record Association was organized, with

headquarters at Hamilton, Ohio. Thirteen volumes of the record have been issued, and over 70,000 animals recorded. In England, the interests of the breed are in the hands of the Oxford Down Sheep Breeders' Association. It has issued a flock-book each year since its inception in 1888.

Hampshire Down Sheep. Plate XIII.

By *H. P. Miller*

396. The Hampshire breed derives its name from the county of that name in the south of England, one of the counties in which it was developed. It is a mutton breed.

397. History in England. — The Hampshire Down sheep was produced by the use of the Southdown on the Wiltshire-horned and the Berkshire-knot sheep. The former was a white-faced race, and the latter black-faced. The Wiltshire was considered the largest of the native breeds. William Humphrey, of Newbury, Hampshire, who is accredited as being the first and greatest improver of the breed, assembled, about 1834, a flock of carefully selected ewes of what were then referred to in a general way as West-Country Downs, including the two above-mentioned local strains. He began his work of improvement by selection, but later became imbued with the idea that crossing would be advantageous, and in successive years purchased three Southdown rams from Jonas Webb. A little later, James Rawlence began improvement of what was known as the Sussex sheep. He used some Hampshire and West-Country Down blood. Later, the two flocks were coalesced to form the Hampshire Down breed. Hampshires were first accorded a class at the Royal Agricultural Society Show in 1857.

398. History in America. — Hampshire Down Sheep were imported into America in 1855 by Thomas Messenger of Long Island. No further importations are recorded until 1881. In that year, Henry Metcalf, of Canandaigua, New York, imported the ram, Shepherds' Pride 2. In 1883, the breed was introduced into Michigan, and in 1885 into Ohio.

399. Description. — The Hampshire is a black-faced breed, larger than the Shropshire, and is ranked by some persons as the largest of the Down breeds, although that distinction is generally accorded the Oxford. An average weight should be 250 pounds for mature rams, and 185 to 195 for mature ewes (Plate XIII).

It is the coarsest in bone and head of any of this group. Its fleece somewhat resembles that of the Southdown, although it is coarser and less dense. The breed ranks rather low in wool-production, the Suffolk only ranking lower. The wool is of about the same grade as that of the Shropshire, but shorter, and covering the body less completely. The face is inclined to be long, and the nose somewhat Roman in the rams. The ears are large and drooping, the face and legs are almost black, or a very dark brown. As compared with the Shropshire, it is somewhat longer in body and leg, and perhaps 10 per cent heavier. The ewes are prolific and heavy milkers. They strongly compete with the Shropshire in the production of twins.

400. Uses of Hampshire sheep. — The claim of the breed to superiority is based on the rapidity with which the lambs grow. In England, the flocks are generally folded, and the lambs fed for rapid development. It is not unusual for a Hampshire lamb to gain a pound a day. The breed ranks very well for mutton-production, es-

pecially where early market lambs are wanted. In this country, Hampshire rams are especially prized for siring lambs to be marketed at three to five months of age. They are winning some favor on the range, as sires for mating with Merino grade ewes. The lambs are said to be good rustlers. Pure-breds will doubtless prove profitable for the production of lambs to be marketed in the early spring or summer. But pure-bred flocks will be chiefly valuable in America for the supply of rams for cross-breeding.

As has been said, for wool-production the Hampshire Down is very mediocre. The fleece is light, short and of rather inferior quality.

401. Distribution. — This breed is now widely disseminated throughout the United States and Canada, especially in the eastern sections. It seems hardy and well adapted to American conditions, and is a good grazer. It has made its way throughout the southern counties of England, and into all the English colonies. It is now found in many countries, among which, aside from North America, including Mexico, may be named Russia, Germany, Portugal, Hungary, South Africa, Australia, New Zealand and several parts of South America, notably Argentina and Uruguay.

402. Organizations and records. — The Hampshire Down Sheep Breeders' Association was organized in England in 1889. The Hampshire Down Sheep Breeders' Association of America was also organized in 1889, and has issued thirteen volumes of its flock-book in which the number of registrations is over 58,000.

Suffolk Down Sheep. Fig. 67.

By *David McCrae*

403. Suffolk sheep get their name from the county of Suffolk, England, where the breed was originally developed. They are a short-wooled mutton breed.

404. History in England. — The Suffolk is the modern representative of the old Norfolk breed, crossed with the Southdown. In some respects, the old Norfolk breed resembled the Black-faced Highland, having the same colored face and legs, with full bone, long spiral horns, long body, flat ribs, and rather narrow loins. It differed from the latter in having very fine short wool. The mutton was of that fine, rich flavor that is found in many semi-wild animals. The great value of the old breed was its mutton, which, when long kept, more closely resembled venison than that of any other breed.

The Suffolk is the result of a cross between this old Norfolk breed and the Southdown, and shows what very important results may be achieved by able and enterprising breeders. The modern Suffolk is a conspicuous example of remarkable success in cross-breeding. By careful selection and management, the horns have disappeared. The Suffolk possesses excellent grazing qualities, and yields a carcass of lean, well-flavored mutton. Separate classes were first made for this breed at the Suffolk show in 1859, but it was not recognized by the Royal Agricultural Society until 1886.

405. History in America. — The Suffolk may be considered a recent introduction to America. In 1888, sheep of this breed were brought both to Canada and to the

United States, the importation to Canada having been made by B. D. Sewell, of New Brunswick, and that to the United States by M. B. Streeter of Brooklyn, New York. They were taken to Iowa in 1892, and have since been established elsewhere.

406. Description. — The Suffolk is a large, rangy sheep, black-faced, hornless, with long, clean, black legs (Fig. 67). It resembles the Southdown in character and wool, but is about one-third larger in body, and much longer in the leg. The wool is of good quality, of the clothing type, and the mutton is excellent. It is a good feeder, and is reputed to be very prolific, yielding twins and triplets frequently.



FIG. 67. — Suffolk Down ram.

407. Uses of Suffolk sheep. — The Suffolk has a place as a mutton sheep, giving a large percentage of lean meat with a rich flavor. It is valuable for crossing purposes, to produce a quick-growing lamb of good quality, popular both with the butcher and with the consumer. The wool is well adapted for hosiery purposes, but is rather small in quantity.

408. Distribution. — In England, the breed abounds in the counties of Suffolk, Norfolk and Cambridge. It has been exported to the continent of Europe, to Holland, Germany, France, Spain, Saxony and elsewhere, where the rams are in demand to give a superior quality of mutton in their produce. It has been taken to South Africa, and Australia and New Zealand. It has been tried with success both in the United States and in Canada, but it is as yet relatively unimportant here.

409. Organizations and records. — The first English flock-book was published in 1886, by the Suffolk Down Sheep Society organized in that year. Some twenty volumes have been issued since. In America, the American Suffolk Flock Registry Association, organized in 1892, has issued the third volume of its flock-book.

Dorset-Horn Sheep. Figs. 68, 69.

By *H. P. Miller*

410. The Dorset is an English breed that takes its name from the county in which it originated. It is a mutton breed, specially valuable for crossing to produce early lambs. It is characterized by gracefully curving horns in both male and female.

411. History in England. — The Dorset is one of the oldest distinct breeds in England, no other race having been mingled with it originally, within the time of any records referring to it. It was first mentioned in 1707, when it was reported to have yeaned in December and again in June. The two counties of Dorset and Somerset seem to have been the home of two races, differing somewhat, which became mingled in the present Dorset. The original stock of Dorsetshire was small, light in the shoulders, with white face and legs and a black nose. Both males and females bore horns. The stock of Somerset was larger, coarser, longer-wooled, with flesh-colored nose and better form. The Dorset seems never to have had a devotee with the genius of Bakewell or Ellman, and at one time came near losing its identity through admixture of the improved breeds of the day. Its ability to produce lambs earlier than any other breed seems to have saved it.

The Dorset was first recognized at the leading English shows in 1862. It has been greatly improved since that date; in fact, American breeders have greatly modified and unified the breed in the past quarter century.

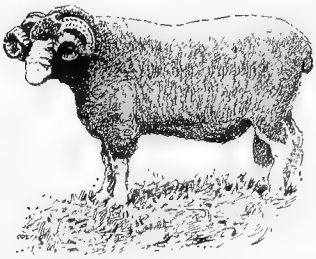


FIG. 68. — Dorset-Horn ram.

412. In America. — The introduction of Dorsets to America has been very recent. The first specimens were shown at the Chicago Fat Stock Show, in 1885. That same year an importation was made into Canada. In 1887, A. Thayer, of Hoosic Falls, New York, and E. F. Bowditch, of Framingham, Massachusetts, made importations. In 1889, T. S. Cooper, of Pennsylvania, imported 153 head. They have not as yet gained the popularity in America that other English breeds have, and have had only a limited trial on the ranges.

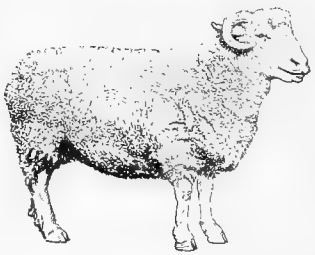


FIG. 69. — Dorset-Horn ewe.

413. Description. — In form and fleece the Dorset-Horn closely resembles the Down breeds, but in some features presents strong contrasts (Figs. 68, 69). Its face and legs are pure white, and the modern American type has a flesh-colored nose. Both sexes have horns, the rams very heavy ones that have a forward spiral curve. In size these sheep are between the Southdown and the Shropshire, the standard weight for rams being about 200 pounds and for ewes, 160 pounds. They generally are taller than

either of the above, but are not so uniform. In length, quality and quantity of fleece they are also between the above two breeds. Some of the breed early brought to America were excessively tall and inclined to be coarse. They were also quite bare of wool on legs and belly. The prevailing type at present approaches the Shropshire in form, although it is not so heavy in the breast and chest. It is now well covered over the body and legs to knees and hocks, and has a good foretop. There is still lack of uniformity, style and quantity of fleece. A somewhat common defect is a constricted heart-girth. The breed stands confinement well and is a good feeder. It is also prolific.

414. Uses of Dorset-Horn sheep.—The strong recommendation of the breed in America, as in England, is for the production of hot-house or winter lambs. It will breed earlier than any other of the English breeds, and the ewes, being heavy milkers, prepare their lambs for market in about ten weeks, so that they command a good price for mutton. Under high feeding they will produce lambs twice a year in some climates, but it has never proved expedient to have them do so. It is doubtful whether they have superior merit as a general farm sheep, but for the production of early market lambs they are especially suited. Rams of the breed are very satisfactory for use on grade Merino ewes in the production of feeders. The ewes are also bred to Shropshire or Southdown rams to produce market lambs. The mutton, except that of fat lambs, is not superior.

For wool-production the Dorset-Horn has a rather inferior place. The wool is short, and still somewhat scant under the body. Ewes average about six pounds and rams about seven pounds of wool of fair quality. The fleece

probably has the least oil of any of the middle-wool breeds, and is less dense.

415. Distribution. — The principal flocks in America are to be found in New Jersey, New York, Ohio, Indiana, Pennsylvania, Virginia and Canada, although the sheep are found in other states. A few have been taken to Australia and elsewhere, but they have not the wide dissemination of the other English breeds. They are numerous in their native counties of Dorset and Somerset, in England, while very excellent flocks may be found on islands of Wight and Portland.

416. Organization and records. — The American Dorset-Horn Sheep Breeders' Association was organized in 1891, and the Continental Dorset Club in 1897. The former issued two volumes of its flock-book bound together in 1894, and the latter has issued fourteen volumes, recording over 17,000 sheep. The Continental Dorset Club publishes a book on the breed entitled "The Winter Lamb." The Dorset-Horn Sheep Breeders' Society of England was organized in 1891.

Cheviot Sheep. Fig. 70.

By *David McCrae*

417. The Cheviot is one of the mountain breeds of Scotland, named after a range of grassy hills on the eastern borderland between England and Scotland. It is noted both for wool- and for mutton-production.

418. History. — The Cheviot has been bred for a very long period on the Scottish borders. The monks of the middle ages had the breed about the pasture lands of the old monasteries; and to the sheep-farming church-men

of Teviotdale are we indebted for the first improvements in the breed. The monks of Melrose had large flocks, which were dispersed in the border fields. It was not till about 1750 that the border farmer gave much attention to the breed or accomplished anything in its improvement.

Cheviots were taken to Canada early in the nineteenth century. In 1838, Robert Young, of Delhi, New York, made an importation, followed four years later by other importations to the same county. In 1845, they were imported into Wisconsin by T. J. Carmichael. Subsequent importations have been made, but the breed did not make much progress in America prior to 1880.

419. Description. — The Cheviot is of medium size, hornless, face and legs white, the body closely covered with wool of a soft fiber akin to the Down wools; but unlike the Downs, which are always likely to have more or less of a gray tinge to the wool, the Cheviot gives a pure white wool (Fig. 70). The head is bold and broad, and the fleece of snowy whiteness comes close up, forming almost a ruff about the face. The ribs are flatter than in either the Southdown or the Highland. It is a very active, hardy animal, with a bright eye and erect ears. Unfortunately it has a tendency to scatter rather than flock together.



FIG. 70. — Cheviot ram.

420. Uses of Cheviot sheep. — The Cheviot is remarkably hardy, and can live on very poor grazing; but, nevertheless, it must have grass of some kind, and with it needs little else. It yields a good class of well-marbled mutton, that is not too fat and dresses a carcass of good weight.

It bears traveling on foot for long distances better than other modern breeds, and is exceedingly hardy. The ewes are good, careful mothers, and highly prolific. The Cheviot cannot be said to be superior as a wool-producer, owing to the light fleece, which, however, is of good quality, medium length and in demand. According to Wallace, an average clip for ewes is four and one-half to five pounds of washed wool. The tendency of American breeding is to improve wool-production and more compact form. Cheviot ewes produce a good class of early maturing grade mutton sheep when crossed with Lincoln, Leicester or Oxford Down rams. These crosses have been popular in the native home of the breed for some years.

421. Distribution. — In the Cheviot hills, the Cheviots are still the leading breed. About the year 1800, Sir John Sinclair tried them in Caithness shire, in the extreme north of Scotland, and they have spread into Sutherlandshire, where they are bred in large numbers. They have done well in many parts of the United States, but not so well in Canada, where the close confinement of the winters is against their active habits. Wherever they can have outdoor exercise all the year round, they are at home. They are specially adapted for high, grassy tablelands, and are most numerous in central and eastern United States, but have become very widely scattered throughout the country.

422. Organization and records. — The Cheviot Sheep Society of Great Britain was organized in 1891, and has published a volume of its flock-book for each year, Volume I having been issued in 1893. The American Cheviot Sheep Breeders' Association was organized in 1891, at Hartwick, New York, and two years later issued its first flock-book. In 1894, the National Cheviot Sheep Society

was organized at Indianapolis, Indiana. Six years later, these two societies united to form the American Cheviot Sheep Society. The latter organization continues the publication of the flock-book.

Leicester Sheep. Plate XIII. Fig. 71.

By *David McCrae*

423. The Leicester (pronounced Les'ter) sheep are a long-wool mutton breed, developed largely in the county of Leicester in England. The land in this county is fertile and rolling, and well adapted for sheep-raising.

424. History in England. — The Leicester sheep are named from the county of Leicester (Les'ter) in England, where the breed had its origin. Robert Bakewell of Dishley near Loughborough in Leicestershire, began his sheep-breeding efforts about 1755. His object was to produce a breed that would fatten quickly at an early age. Before this, bulk of body and weight of fleece had been the aim of breeders of long-wools. The common sheep of the county at that time were large, heavy and coarse-wooled, white-faced, flat-sided, with large bones and long, thick, rough legs. Bakewell would never tell how he got his flock up to the excellence which later distinguished it, nor yet the breeds he used, but it is thought that the basis was the old Teeswater breed, modified by selections from the local breeds of long-wools in the district. This Teeswater breed, from the valley of the river Tees in Yorkshire, was a tall, clumsy animal, small in the bone, round in the rib, and with a thin fleece of long wool. It made good mutton, but was slow in maturing. Bakewell bred for mutton, with the least bone and the least waste, and

for quick-feeding lambs. The breed was called the New Leicester or Dishley breed. Formed by careful selection and inbreeding, the new flocks had great prepotency, but were sometimes delicate in constitution and shy breeders. Even now, after 150 years, these features occasionally appear.

The Dishley flock became famous. Bakewell decided to let his rams instead of selling them outright. In 1760, he let three rams for $4 each, and two for $4.50 each. The next year his price was $5 each, and this continued with varying success, until in 1780 he reached $50 for his best. Then the demand increased rapidly. In 1785, the top price was $500. In 1789, he let three rams for $6000, seven for $10,000, and the remainder of his flock for $15,000. His reputation was established, and the New Leicester became the most popular breed in England. It was much used for crossing with other breeds to produce quick-feeding lambs; and this reputation still holds.

425. History in America. — Bakewell or Dishley sheep reached America in colonial days. It is said that George Washington had Bakewell ewes at Mount Vernon. Others were known in Pennsylvania and New Jersey. About the beginning of the nineteenth century, Mr. Toofy, of Quebec, made an importation. Later, about 1806, they were imported into Massachusetts. In the same year, Captain Beanes brought some rams and ewes from England, and placed them on a farm in New Jersey. The Beanes flock subsequently, in the hands of others, attained much notoriety. A number of importations were made later, and gradually the breed worked westward.

In America, a type has been developed that differs somewhat from both the English Leicester and the Border Leicester, both of which types have been used in many

of the flocks in Canada and the United States. Some owners assert that the modern American Leicester is a better sheep than either of the English types, and that this is the only English breed of sheep that has been improved in America. Certainly the modern American Leicester is a fine sheep, evenly developed, and when in good form is a beautiful animal.

426. Description. — The Leicesters are a hornless breed of sheep, of large size, rectangular form of body on clean legs, and with bare faces or carrying a very scant topknot. (Fig. 71. Plate XIII.)

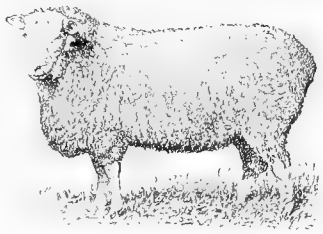


FIG. 71. — Leicester ram.

There are two types in the breed, the English or Bakewell, and the Border Leicesters, and these vary somewhat in form and details. Both types are recognized by all Leicester associations.

427. Types. — *The Dishley or Bakewell type* became widely used in England, and has become known as the English Leicester. Because of its great prepotency and its quality of putting on fat quickly, it became popular as the greatest of all the mutton breeds for crossing purposes and for early market lambs.

The Border Leicester is so named because it is bred in the border counties of England and Scotland, Roxboroughshire in Scotland being now the headquarters of the breed. George Culley, of Denton, near Darlington in Durham, and his brother are looked on as the original breeders of the Border Leicester. The Culleys hired rams from Dishley and crossed them on a stock of Teeswater ewes till they had a flock of Leicesters. When they retired in

1806, their flock, through that of Compton of Learmouth, supplied a part of the Mertoun flock of Lord Polworth. This flock has been bred with the greatest care since 1802, and by judicious selection and without outside blood has been made the premier flock of the breed.

The Border breed has a white face, free from wool. The English Leicester may have a small tuft, and may be bluish white in color. At one time, blue faces were in fashion. The head and eye are important points in a quick-feeding animal. "Never pick a rascally head and a bad eye," no matter what the carcass may be, is the advice of a famous breeder.

428. Uses of Leicester sheep. — The Leicesters are used very much for crossing purposes, to get early lambs for the market. Having been bred more for mutton than for wool, the breed has so far not been so widely distributed in America as its good qualities deserve. Of late years, however, the market for fat lambs has become a feature, and there is now more demand for the Leicester for cross-breeding. For mutton alone, the breed is inferior. It is too large and too fat, unless killed young. The cross-bred mutton on Hampshires or Merinos is superior to the pure-bred. The Border Leicester-Cheviot cross has found much favor for the production of choice mutton for the British market.

The wool of the Leicester is fine and long, and the fleeces will weigh nine to eleven pounds. Fine-wool rams on grade Leicester ewes produce a fine, compact fleece that is heavier than that of the Leicester pure-bred.

For grazing, the Leicester is in no way superior. It is not specially hardy, and cannot rustle sufficiently well to adapt it to much of the range lands.

429. Distribution. — The Leicesters are at home in

the border counties of England and Scotland, and in other parts of Great Britain. While tried to some extent abroad, notably in part of Europe, New Zealand, Australia and America, they have not attained the reputation of the heavier-wooled breeds. In America they are found mainly in Ontario and other Canadian provinces, and in Pennsylvania, Michigan, Illinois, Iowa and Nebraska.

430. Organizations and records. — The first organization devoted to the Leicester was the Dishley Society, which was formed to sustain the efforts of Bakewell. This society has been succeeded by the Leicester Sheep Breeders Society. In England there is also the Society of Border Leicester Sheep Breeders. The American Leicester Breeders' Association has issued eight volumes of its flock-book, since its organization in 1888, recording over 16,000 sheep.

Lincoln Sheep. Plate XIII.

By *David McCrae*

431. This breed is of large size, with a heavy fleece of long, wavy or curly wool and a moderate tuft of wool on the face.

432. History. — On the eastern coast of England lies the county of Lincoln, which contains a large tract of fen or marsh land, lying exposed to the North sea and very little above it. On this flat fen land has been bred a race of sheep which takes its name from the county, and which has made for itself a world-wide reputation. In olden times, the sheep raised on the fens of Lincolnshire were remarkable for large size and for length of wool. They had also large limbs, big hoofs, hollow flanks and flat sides. We know little about the origin of the old Lincoln

breed. Ellis, who published his "Shepherd's Guide" in 1749, is the first to mention them as an established breed in the fens of Lincoln. He says that they were "the longest legged and largest carcassed sheep of all others; and although their legs and bellies were for the most part void of wool, yet they carried more wool on them than any sheep whatsoever." The modern Lincoln is said to be the product of a Leicester cross on the old Lincoln. It is a fine representative of the long-wool sheep, and yields a very heavy fleece of combing wool.

Lincolns were first brought to New England about the close of the eighteenth century. In 1825 an importation was made to Massachusetts by A. A. Lawrence. In 1834 they reached Ohio. An importation was made to New York in 1836 by L. D. Clift. Since that time importations have been made to both Canada and the United States. The breed has not been popular in this country.

433. Families. — Mention should be made of two notable flocks. One of the leading flocks in England is that of Henry Dudding, Riby Grove, Great Grimsby, Lincolnshire. It is a very large flock and has been bred carefully for about one hundred and fifty years. Rams from this flock have sold for $5000 each. In 1907, forty-eight rams averaged $450. Another flock which has a notable record is that of J. E. Caswell, Laughton, Folkingham.

434. Description. — For many years, the fleece has been made a leading feature of the Lincoln breed. The wool is long, somewhat lustrous and of a strong and sound combing quality. For length of fiber and strength of staple, no other breed but the Cotswold can rival the Lincoln. The color is white. The head is large, and without horns. The sheep gives the impression of massiveness. It is gentle, a good feeder, matures early, and has fair

grazing qualities, but cannot be said to be very prolific. (Plate XIII.)

435. Uses of Lincoln sheep. — The Lincoln is bred for wool, and its reputation has been made from the fleece. Lincolnshire has an area of about twenty-seven hundred square miles, and its annual wool clip exceeds nine million pounds of washed wool. For many centuries this wool has had a reputation for strong, tough fiber, the fen wool especially having this marked toughness. It is said by many persons that the breed removed from its native fen land loses the tough, strong quality of fiber, no matter how good the pasture may be to which it is removed. Eighteen pounds of wool for mature rams, and fourteen to sixteen for mature ewes may be considered average yields.

The Lincoln has been widely used, especially in New Zealand, for crossing on Merino stock to give a long combing wool. It impresses its long-wool qualities on its offspring. This cross is also much employed in Argentina and Australia, to produce large wool sheep, and incidentally mutton, for the English market. The pure-bred Lincoln is not popular for mutton purposes, as it is too fat, and the mutton is of inferior quality.

436. Distribution. — Lincoln sheep are still largely bred in their old home in Lincolnshire and neighboring counties in England. In Australia and New Zealand they are favorites for crossing purposes, and they have also reached Russia and South Africa. In South America they are popular, and very high prices have been paid for export rams to go to Argentina, but in North America they have not gained the same favor. There are a few good flocks in Canada, mainly in Ontario, and some have been tried on western ranches with more or less success.

437. Organizations and records. — The National Lincoln Sheep Breeders' Association of America, organized in 1891, looks after the interests of the breed in this country. It has published two flock-books. In England there is the Lincoln Long-Wool Sheep Breeders' Association, organized in 1892. It issues a volume of its flock-book each year.

Cotswold Sheep. Plate XIII.

By *David McCrae*

438. The Cotswold is a breed of sheep raised both for wool and for mutton. It is of large size, capable of enduring much hardship and exposure, and well adapted to many soils. The name is derived from a range of bleak uplands in Gloucestershire, England, known as Cotswold hills.

439. History in England. — The Cotswold is an old English breed, whose antiquity is undoubted. It is one of the earliest sheep mentioned by name in Anglo-Saxon records. In the time of the Roman conquests, the region from which these sheep came is said to have been famous for the production of wool. Low suggests that the Cotswold was developed from the sheep found in the counties of Warwick and Oxford at an early period. The modern Cotswold is not so large nor so high-standing as was the older breed, but has more style, being remarkable for symmetry, early maturity and weight, with a lofty carriage, a fine, well-covered head, and an abundant fleece of white, wavy wool. Much of this improvement is ascribed to the use of Leicester rams on Cotswold ewes, a practice very common about the beginning of the nineteenth century.

The type of the breed has been well maintained by the English breeders, and the flocks of the various breeders now show a uniformity that is very desirable. Garne of North Leach, Hugh Aylmer of Norfolk, Gillett of Chalsbury and Swannock of Cidencester were notable breeders who had flocks of good type.

440. History in America. — We have a record of an importation of Cotswold sheep by Christopher Dunn, of Albany, New York, in 1832. Doubtless there had been previous importations, for even at that date sheep of this type were rather common in New York. In 1834, Isaac Maynard took a small flock into Ohio. In 1837 they reached Kentucky, where they later became very popular. In 1840, Erastus Corning, also of Albany, brought over a select lot; and W. H. Sotham made an importation of nineteen about the same time. In 1854, George Miller, of Markham, Canada, brought over thirty head, and these were shown at the Provincial Fair. In Quebec Province, A. H. Torrance, of Montreal, and J. L. Gibb Comptom had good flocks, from which they sold into Maine, Massachusetts and Vermont. Beginning about 1870, with the decreasing popularity of Merinos, the Cotswold experienced an increasing demand, and many flocks were established, especially in central United States.

441. Description. — The Cotswold is a large, high-standing sheep, with heavy fleece of long, white, lustrous wool. A mature ram should weigh 250 pounds or more, and a mature ewe 200 pounds at least. An ample topknot, often covering the eyes, is one of the distinguishing characteristics of the breed. It is uniform in type, with bold, upright carriage, broad back, and shows a fair leg of mutton. (Plate XIII.) It is a superior feeder, specially well adapted to good pasture land, and fairly prolific.

442. Uses of Cotswold sheep. — The Cotswold is a fair mutton sheep, giving a big carcass of strong mutton, very popular in the mining districts of England. It has not been so popular in America for mutton, except the lambs. The abundance of external fat is against it. In America it has been used for crossing on Merino and native sheep, the produce being a lamb of the mutton type, quick-feeding and hardy, weighing 120 to 140 pounds at a year old and carrying fair fleece. For wool, the breed has always been celebrated, giving a heavy fleece of strong combing wool, weighing sixteen to eighteen pounds per fleece in the best specimens. The staple should average ten inches in length, and frequently exceeds this. The half-bred lambs yield a large fleece, giving much profit to the wool-grower.

443. Distribution. — The Cotswold has become widespread in America. The largest number of breeders are in Ontario, although there are many flocks in the other provinces of Canada. In New York, there are good flocks. Going westward, Indiana, Illinois, Ohio, Michigan, Iowa and Wisconsin stand in the order named for number of breeders, but all are exceeded by Oregon, which has the largest number of any state in the Union. There are large flocks in Utah, and many half-breeds in Montana and other sections of the West. Kentucky at one time had large flocks, and the blood there is still in evidence, but they have not been kept on record. In England, the Cotswold is most popular in its native county of Gloucester and neighboring counties. It has been exported to Russia, Germany and France, on the continent, and to Australia and New Zealand, as well as to many parts of North America.

444. Organizations and records. — In 1878, the American Cotswold Sheep Association was formed to keep the record of the breed. Seventeen volumes of the record have been issued, with over eighty thousand animals recorded. The list of breeders is steadily increasing. The present headquarters of the association are at Waukesha, Wisconsin. The English representative of this breed is the Cotswold Sheep Society of England, organized in 1892. It also publishes a flock-book.

CHAPTER XIII

THE WOOL BREEDS OF SHEEP

THESE breeds are all derivates or subdivisions of the great Merino group, so that wool and Merino are synonymous. The wool type bears much the same relation to the mutton type of sheep that the dairy type bears to the beef type of cattle. Their form is of less scale, more angular, narrower, with lighter quarters, and the sheep are slower maturing and yield a carcass deficient in fleshing and finish. On the other hand, they produce fleeces of the finest staple and in greatest quantity.

MERINO SHEEP. Plate XIV.

By *Joseph E. Wing*

445. Of the Merinos there are several families, all of which are characterized by the production of fine fleece. The name "Merino" comes from Spain and has been variously explained.

446. History in Spain. — Merino sheep are native of Spain. The land is of variable topography, there being wide, dry plains, high, cool mountains and tablelands and well-watered valleys.

As to the origin of the Merino, little is known. Professor Low says that the sheep of Spain came originally from Phœnicia and Carthage, introduced by the Car-

thaginians and the Moors, and from Italy. At the beginning of the Christian era, historians related that the sheep of Spain had a superior fleece. When in the eighth century the Moors took possession of Spain, they introduced the manufacture of fine fabrics, and the sheep of Spain furnished the wool. It seems probable that the development of the Merino as a bearer of fine wool was begun at a date prior to the beginning of the Christian era.

Sheep in Spain have long been nomadic, spending the summers in the highlands and the winters on the low plains. The annual movement of these millions of sheep was a notable event. In this connection it is interesting to note that the sheep were divided into two great groups as related to these drives. One group known as Estantes, was stationary on the farms, and was composed of sheep of fairly large size, with wool somewhat coarser than that of the other type, less exposed, perhaps, to the rigors of climate. The second great group, known as Transhumantes, was made up of the migratory sheep that constituted the drives. These were subdivided into flocks or "squads" of manageable size for the movements.

447. History in America. — Successful importation of Merinos to America began in 1801, when Seth Adams brought a pair to Massachusetts. In the same year, M. Dupont de Nemours is said to have imported one Merino ram, which had considerable influence on certain flocks in New York and other eastern states. In 1807, Seth Adams removed to Ohio, taking with him his Merinos, now considerably increased. In 1802, Colonel David Humphrey imported from Spain to Connecticut ninety-three Merinos, chiefly ewes. The good quality of these

early importations attracted considerable attention among sheep-men, which resulted in increased importations. One of the most influential of these early importers was Robert Livingston, who made his first importation in 1802. By his writings and by his political influence he advanced the interest in Merinos very greatly. Another prominent importer was William Jarvis, of Vermont, then the United States consul at Lisbon. Mr. Jarvis sent to this country a total of about four thousand head, which were widely distributed through the East. All of these sheep were of superior breeding, and included representatives from the families of Paular, Escurial, Aguirre, Negrette, and Montarcos. From this time for many years Merinos were on the crest of popularity, and prices ruled very high. Plumb states that "it is estimated that from April 1, 1810, to August 31, 1811, there were brought to the United States 19,651 Merino sheep." Most of the sheep imported from Spain were of the great migratory group.

Merinos in America are now grouped in three great families, designated as the American Merino, the Delaine and the Rambouillet.

448. Families. — The principal families represented in the American importations, and hence the progenitors of our modern American Merinos, were as follows:

Paular Merinos. — The Paulars were owned by the Carthusian friars of Paular. These friars had one of the handsomest flocks in Spain, with soft, silky, close and compact wool, carrying less surface yolk than some other types. The Paular lambs were hairy at birth. The Paular subtype of the American Merino is a well-established strain.

Aguirre Merinos. — These were very well-covered

sheep, with much wool about the face, and a dense, much crimped fleece. The sheep had round, broad bodies, short legs, and much loose skin in folds and wrinkles.

Atwood Merinos. — The famed Atwood family of Merinos, so popular the latter half of the past century, was formed by mating Infantados with Paulars, which much improved the type of sheep and the fleece. They were characterized by many folds.

The Escurial Merinos were nearly as tall as the Paulars but were slighter in build. Their wool was crimped and not so thick as the Paular wool.

Guadalupe Merinos. — These were heavier in bone than the Negrettes and were celebrated for both the quality and the quantity of their wool. Their fleeces were thick and crimped, and more oily than the Negrettes.

Negrette Merinos. — The Negrette Merinos were the largest and strongest of the traveling sheep of Spain. The fleeces were shorter than those of the Paulars. They were wooled on the face and to the hoofs. They were all loose skinned, with heavy dewlaps, and the rams carried large horns.

Infantado Merinos were bred by the Duke of Infantado and were very superior sheep. Their horns came close to the sides of their heads, while those of the Paulars and Negrettes stood out. Many Infantados were brought to America, notably by Colonel Humphrey.

In this connection, mention should be made of some of the families of Merinos that have been built up in European countries on foundation stock imported from Spain. Notable among these families are the Saxon, Silesian or German, Australian, French (Rambouillet) and Swedish.

Saxon Merino. — From the Escurial flocks of Spain, about three hundred Merinos were sent, in 1765, to

Saxony. These were naturally among the finest wooled of Merinos, and in their new home more attention was paid to this quality; so much attention, in fact, that the sheep themselves lost stamina and hardiness and became very delicate and hard to raise. The wool of these sheep, however, is of extraordinary fineness and beauty. They yield about two to three pounds of washed wool per head. There are not many breeders of pure Saxon sheep in America, although they have been bred to some extent in western Pennsylvania and Virginia. This family is now almost extinct.

Silesian, or German Merino. — This breed was established in Silesia by an importation of Infantado and Negrette Merinos in 1811, although importations had been made earlier with some success, notably those of Von Vinke in 1768 and 1778. Since that day they have been bred pure, principally on the estate of Ferdinand Fischer of Wirchenblatt. For many years a careful record of each sheep has been kept on this estate. Silesian ewes shear eight to eleven pounds of unwashed wool, the rams twelve to sixteen pounds. The wool is two to three inches long, dark on the outside, not gummy, but with a white, clear oil. The ewes weigh 110 to 130 pounds and the rams 145 to 155 pounds. There have been many Silesians imported into America. Mr. Wm. Chamberlin, of New York, imported 246 head between 1851 and 1856. It is probable that at this day most Silesians in America have become merged with one or the other of the larger Merino families.

Australian Merino. — As has been said, the Merino is the leading sheep in Australia, which places Australia at the head of the list of Merino sheep-producing countries. Taken to New South Wales in 1797, the sheep found the

hot, dry ranges well suited to their needs, and to the production of a high grade of wool.

449. Description. — The distinguishing characteristic of the Merino is its covering, which is of very fine wool, usually delicately crimped. This wool is generally short, ranging from an inch or less to four inches, and sometimes to a greater length. It is dense, that is, there are a great number of wool fibers to the square inch of skin. A Merino will carry 40,000 to 48,000 fibers to the square inch. Wool normally grows over the Merino to the tips of the ears and to the hoofs of the feet. In the Merino is seen the greatest development of wool in proportion to carcass of any breed. In Spain, the best rams of the early days are reported to have yielded about 6 to 8 per cent of their weight in wool, while in America, in about 1844, the yield had increased to 15 per cent. This, of course, is unwashed wool. The appearance of the Merino is not very pleasing. The form, seen when shorn, is usually angular, the shoulders often narrow, the back not usually so straight or strong as in some English breeds, the legs less straight and often of greater length, the neck more slender. The Merino ram usually has horns, giving the appearance of masculine vigor. The appearance of weakness in the Merino is hardly borne out by its behavior. It is very enduring and resistant, withstanding storm, cold and starvation better than most sheep, and its vital force is very strong.

450. Uses of Merino sheep. — Merino sheep are kept primarily for their wool. It is true that, after they have served their time for this purpose, they are commonly fattened and made into mutton, yet the fleece is usually the first consideration with the Merino flockmaster. Much attention is paid to the quantity and quality of

wool borne by these sheep. In some families of Merinos, the body surface is increased by folds or wrinkles on the skin, which increase the wool-bearing surface. These folds are especially pronounced about the neck, and sometimes make huge "collars."

451. The wool. — Merino wool is most esteemed when it is fine. The diameter of a fiber of Merino wool varies from $\frac{1}{1000}$ to $\frac{1}{1800}$ of an inch, while the fibers of the English breeds vary from $\frac{1}{575}$ of an inch for an Oxford Down, to $\frac{1}{875}$ of an inch for a Southdown. It should also have a short crimp throughout its entire length, and should be strong, silky and well supplied with white oil. This oil protects the wool fibers, but at the outer ends it collects dust and gives the coat a dark and uninviting appearance, which is dispelled when the wool is opened and the beautiful white and glistening interior is viewed.

The density of the wool is an essential factor, since on that depends the weight of the scoured fleece. Sufficient oil to protect the fleece is essential, but a surface of grease is unnecessary, and in recent years has been recognized as undesirable. During the so-called Merino craze that existed in America soon after the Civil War, the aim was to get as heavy a fleece as possible, and many breeders unwisely sought to attain this result by breeding sheep with very greasy wool. It was learned, however, that this only enfeebled the sheep without bringing any sufficient compensation, and in recent years breeders have sought to produce animals bearing only sufficient oil to protect the fleece well.

The amount of oil carried by Merino fleeces varies with the different families, the American or Spanish types having most and the Rambouillet perhaps the least oil. Merino fleeces have been grown so heavy with oil that

they scoured out no more than 12 per cent of clean wool; others have made 40 per cent. Perhaps an average yield of clean wool would be about 30 per cent of the weight of the fleece as shorn. A good ewe should shear fifteen pounds and a ram twenty to twenty-four pounds of wool. Individual records may far exceed this.

452. Distribution. — The Merino has become very widespread, and is now found in all civilized countries where flocks are kept, although it cannot be said to be universally popular or successful. It originated in a warm climate. It has shown ability to withstand hot weather and tropical climates, so long as they are dry. By far the greater part of the sheep of Australia are Merinos. It has also been important in New Zealand and Argentina. The Merino thrives in Vermont, New York, Ohio, and other north-central states, in Texas, and all the states of the West, where it constitutes by far the majority of the range flocks. It has never been popular in Canada, and is not raised in England.

American Merino Sheep. Figs. 72, 73.

453. The American Merino was developed from the Spanish Merino, the blood of several different families having been interbred. In recent years, the Delaine and Rambouillet types of Merinos have become more popular in America than the American Merino, owing to their better form and ability to fatten, and the high prices prevailing for mutton.

454. Description. — The head of a typical American Merino is small, broad and short, the rams carrying heavy, spirally-twisted horns, and the ewes being hornless. The form of the American Merino is somewhat delicate.

The skin is of the most attractive pink. The prevailing fashion is to have three to five heavy folds on the neck, large on the under side, but not on the upper side; two or three short folds on and immediately back of each elbow or arm; fine, thick wrinkles running down the sides, but not extending over the back. Wrinkles may also be found across the hips, sometimes from the tail in the direction of the stifle and sometimes at right angles with them. Folds may occur around the tail to give it a wide appearance, and also across the thigh, with a deep flank. The fleece covers the entire sheep, except the tip of the nose and the hoofs. Usually the eyes are hidden by wool. The outside of the fleece is a dirty brown, but inside it is white and glistening. The one-year-old fleece will show a length of about two and one-half inches. The size of the American Merino varies much. Ewes may weigh 80 or 100 pounds, rams 100 or 175 pounds. (Figs. 72, 73.)



FIG. 72. — American Merino ram.



FIG. 73. — American Merino ewe.

The American Merino does not reach maturity until between three and four years of age, and in this respect ranks below other breeds. It is characterized, however, by longevity.

455. Uses of American Merino sheep. — American Merinos surpass all others in the production of a fine, strong and heavy fleece. Mature ewes frequently shear twelve to fifteen pounds, and rams should attain to twenty pounds. Plumb, quoting from a Vermont report, says that in 1812, the best rams in Vermont produced but 6 per cent of wool to weight of body. In 1844, the wool had increased to 15 per cent, in 1865 to 21 per cent and in 1880 to 36 per cent, showing a very notable increase in the production of wool. Unfortunately we do not know what the increase in per cent of scoured wool has been.

The American Merino does not usually fatten so readily as other types of the Merino; and when compared with the mutton breeds it is inferior.

In the West, the American Merino was largely instrumental in transforming the coarse and thin-wooled Mexican ewe into one of far better and heavier fleece, with also better form and increased hardiness. The American Merino has been much used for crossing in this country and others, and the result is invariably an improvement in wool-production in the grade over its other parent. Merino ewes are crossed with some of the middle-wool breeds to produce a good market mutton sheep, yielding a somewhat smaller clip of wool.

456. Distribution. — In America, the American Merino is widely scattered, and does well under very diverse conditions. It is hardy and active, and can glean a living under unfavorable conditions. It has been largely exported to Australia and Africa. In Australia, Merinos are bred pure. In New Zealand, they are largely intermixed with sheep of mutton type.

457. Organizations and records. — The Merino has suffered from an overabundance of distinct organiza-

tions devoted to its interests, and the absence of one centralized and directing body. It was not until 1906 that any success was attained toward the formation of such a national society. In that year, the American and Delaine Merino Record Association was formed, by the union of the International Delaine, Standard Delaine, and Improved Spanish Delaine Merino Sheep Breeders' Associations. Among nearly a score of associations giving attention to Merino sheep may be mentioned the following, which are concerned especially with the American Merino: The Vermont Merino Sheep Breeders' Association, United States Merino Sheep Breeders' Association, American Merino Sheep Register Association, Ohio Spanish Merino Sheep Breeders' Association, New York State American Merino Sheep Breeders' Association, Michigan Merino Sheep Breeders' Association, Missouri Merino Sheep Breeders' Association, National Merino Sheep Register Association, Standard American Merino Sheep Breeders' Association. Many of these associations issue flock-books, and employ a score-card for judging purposes.

Delaine Merino Sheep. Fig. 74.

458. The word Delaine means "of wool," and is from the French. Delaine wool can be combed and spun with the fibers of full length, making a fabric of great strength and durability. The Delaine type, of several families, has been developed from importations of Spanish Merinos, by selections from several different flocks as noted in the following paragraphs.

459. Families. — *The Dickinson Delaines* were developed from sheep of the Humphrey importation of 1802,

mentioned above, by William R. Dickinson of Ohio, who began his improvement of Merino sheep in 1809. James McDowell became possessed of some of the Dickinson flock and created the McDowell strain of Dickinsons. The standard of excellence for Dickinson Delaines says that the sheep shall have a deep, round, wide and long body, showing mutton capacity, carrying heavy, thick flesh, the top- and under-lines straight, the skin smooth and pink and well filled out, being free from folds. The head may have small horns, but a polled head is preferred. The fleece should be three to five inches long, of a quality to grade XX or XXX fine Delaine combing. Rams should shear fifteen to twenty-five pounds and ewes ten to fifteen pounds of unwashed wool. Mature rams should weigh 200 pounds, and mature ewes 150 pounds.

The National Delaines are descended from an importation of Merinos, made by R. W. Meade, in 1820. Alex. Reed, of Washington county, Pennsylvania, came into possession of a number of this importation the year following, and his flock may be considered the foundation of the Delaine type. Many of the Reed flock were sold to other breeders in Pennsylvania and West Virginia, who developed the type, perhaps more than Reed had done. This type is not very different from the Dickinson. It has the smooth body, characteristic of the Delaine, almost free from folds. It does not seem to be desirable to dispense with folds altogether, as they appear to be associated with density and weight of wool. This family does not attain so large size as the Dickinson, running perhaps fifty pounds less for both male and female. The staple should reach three inches in a year, and the fleece should weigh up to nine pounds and be comparatively free from oil.

The Victor Beall strain of this family is the result of a cross of Spanish and Black-top Merino blood. About 1877, a Spanish ram, named Victor, was used in the flock of Black-top Merinos owned by R. H. Russell. Fifteen years before, a ram of Spanish and Black-top blood, purchased from the flock of C. H. Beall, of West Virginia, had been used on some of the Reed flock, then in the hands of McClelland Brothers. The offspring of the descendants of these two rams were very superior, and the strain came to be known as Victor-Beall Delaine Merino.

The Black-top Spanish Merino. — In 1821, William Berry of Washington county, Pennsylvania, purchased some ewes and a ram of Mr. Dickinson, which he bred very carefully. He was impressed that the sheep having the darkest appearance or "top" were the hardiest and best feeders. By selecting along these lines, he developed a family that he called Black-top. It differs in no material way from the other families, the size being perhaps a little greater and the fleece a little heavier. The wool is not so much laid on over the head and has a darker appearance on the outside. The staple should reach a length of three to four inches, and the rams should yield thirteen to fourteen pounds, the ewes seven to twelve pounds of brook-washed wool. Black-top rams are horned, while the ewes have smooth heads. The form in general is of the mutton type.

The Improved Black-top Merino also had its origin in Washington county, Pennsylvania, in the hands of George Black. Beginning about 1853, and continuing for many years, Robert Johnston, also of Washington county, used only Black-top rams on his ewes, many of his rams coming from the Berry flock. His ewes traced to the Dickinson flock. In 1850, Black came into posses-

sion of twenty-five Black-top ewes, that traced to the Dickinson flock. On these he used rams of Berry and Johnston breeding, and from this foundation developed the Improved Black-top Delaine, the word "improved" being used because the advocates considered this family superior to the Black-top Spanish.

460. Description. — Delaine sheep have smoother bodies than the American Merinos, with fewer folds and wrinkles, sometimes with none. They vary considerably in type, according to the individual ideals of their many breeders. They are larger and heavier than American Merinos and fatten more readily. The weight of matured rams may be given as 140 to 200 pounds, and of ewes as 100 to 150 pounds (Fig. 74). Their breeders have striven to combine mutton qualities, to some extent, with the production of a fine fleece. The breeders avail themselves rather freely of whatever Merino blood they fancy will improve their type. Thus, when the flock is losing in weight of fleece, they sometimes resort to the use of American Merino rams to thicken the fleece and make it heavier, or to Rambouillet rams to increase the size. The important item sought is to keep good size and mutton quality, while furnishing fleece of good length and staple, grading XX or better.

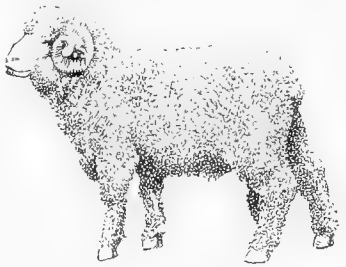


FIG. 74. — Delaine Merino ram.

461. Uses of Delaine Merino sheep. — The Delaine Merinos bear wool a little longer and coarser in fiber than the American Merinos, with a little less crimp and less oil, and with stronger fibers well adapted to carding.

The fleece in a well-kept matured ram should average twelve to eighteen pounds and in the matured ewe about nine to fifteen pounds.

Much may be said in praise of the quality of Delaine mutton. It easily leads in the Merino families. The wethers mature rather quickly, and sell at a good price.

The Delaine Merino has been used to good advantage in crossing to produce better shearing qualities without detriment to the mutton qualities. This result has frequently been secured on the western ranges.

462. Distribution. — Among breeds of Merinos, the Delaine is growing in popularity. It is found in New York, Pennsylvania, Ohio, Michigan, Iowa and in adjoining states. For use on the ranges, the Delaines are finding increasing favor, especially where the pasturage is good. The Black-top Spanish Merino is especially numerous in parts of Pennsylvania where it was developed. They are less hardy than the American Merino.

463. Organizations and records. — At present, the most representative organization caring for the interests of these sheep is the American Delaine Merino Record Association, mentioned under the American Merino. Starting with the organization of the Victor-Beall Delaine Merino Sheep Breeders' Association, established in 1882, in Pennsylvania, a large number of societies have been formed, of restricted membership and more or less restricted influence. Several of these have published flock-books, and have established score-cards for judging purposes.

Rambouillet or French Merino Sheep

Figs. 75, 76.

464. The Rambouillet is a very large type of Merino, developed in France from Spanish Merino stock, and taking its name from the Royal farm at the village of Rambouillet, near Paris.

465. History. — The first importation of sheep from Spain to the Royal farm at the village of Rambouillet was in 1786. Other importations were made at later dates. The improvement was secured principally by selection, the object being to produce a large carcass, of good mutton form, covered with a good fleece. Much success was attained in point of size, although the fleece did not increase in the same ratio. The French government officials kept careful records of their breeding operations at Rambouillet for upwards of a hundred years. Besides the flock at Rambouillet, other flocks were established in France, and from these important breeding farms in Germany were stocked.

Rambouillets were first brought to America in 1840, under the name of French Merinos. Many were imported during the fifteen years following, and the breed had rather widespread popularity. Between the years 1856 and 1860, a number of Rambouillets, bred by John D. Patterson, of New York, and descended from an importation of his own, were taken to California and became the progenitors of several very noted flocks now existing in that state. In 1851, a company of Ohio breeders, headed by A. P. Howard, made an importation.

At first, Rambouillets were welcomed, but later they went into disfavor, owing principally to an alleged lack

of hardiness. The truth is, perhaps, that the Rambouillets, being larger than American Merinos, require more food, which was not always given them. About 1890, a revival of interest in the breed occurred, and since then it has greatly increased in distribution and in esteem. The later breeders have not found the Rambouillet to lack in hardiness. Much blood from the German flock of Baron F. Von Homeyer has been mingled with the bloods of France, and numerous importations from each country have been made. The *Franco-Merinos* represent the blood of the Rambouillet and the American Merino.

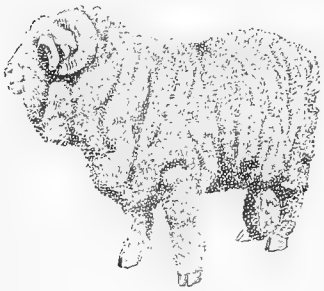


FIG. 75. — Rambouillet ram.

466. Description. — The most striking difference between the Rambouillet and the American Merino is in size (Figs. 75, 76). Rams at maturity will average in weight 175 to 185 pounds, and ewes should average 140 to 160 pounds. Individuals, both male and female, may go as much as a hundred pounds heavier. This large body, usually smooth and free from wrinkles, except perhaps, one or two folds on the neck, is completely covered with a fine white fleece, not bearing too much oil. The fleece should be dense, and the staple about

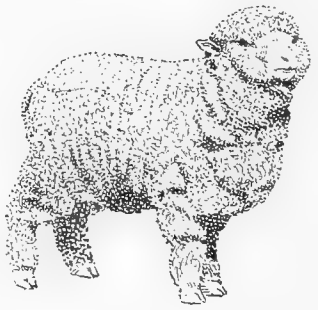


FIG. 76. — Rambouillet ewe.

three inches in length. The head is larger in proportion than in the American Merino, the nose strongly aquiline and covered with fine, white hair or short, fine wool. The rams usually have large, spirally curved horns, although horns may be entirely lacking. The ewes are hornless. Sometimes the observer is impressed by the length of leg. The Rambouillet is also characterized by hardiness, early maturity, longevity and prolificacy.

467. Uses of Rambouillet sheep. — As a wool-producer, the Rambouillet ranks below the other Merinos in percentage of fleece to body weight, and in fineness and the amount of oil and crimp, although it ranks well when compared with other breeds of sheep. The average yield of fleece is about fifteen pounds for rams and ten pounds for ewes.

The Rambouillet fattens well, although not equaling the English breeds in this respect, and produces a fair quality of mutton. Rambouillets on the ranges have great popularity, owing to their large size, hardiness and the ability of the ewes to hold their wool well with advanced age. Rambouillet ewes are prolific and good mothers, and their lambs are usually hardy and strong at birth, and come on fast.

For cross-breeding, the Rambouillet is in great favor. Crossed with sheep of any of the mutton breeds it nicks well, making a very fine lamb, large, quick to fatten, and having a good, heavy fleece of excellent wool. It is also used very successfully on American Merinos to produce a smoother lamb of greater size and hardiness.

468. Distribution. — The demand for these sheep has been wide, especially for the purpose of improving wool-production by crossing on other breeds. Aside from those brought to North America, importations have been made

into many parts of Europe, notably Germany, and to Australia, New Zealand and Argentina in South America. In America, the Rambouillet is widely distributed, especially in the middle states and in Utah, Washington and down through California.

469. Organizations and records. — In 1889, the American Rambouillet Sheep Breeders' Association was organized at Pontiac, Michigan. It issues a flock-book. In 1901, the advocates of the sheep imported from the Von Homeyer flock organized the Von Homeyer Association of Rambouillet Sheep. The Franco-American Merino Association was organized in 1900. Neither of the latter two associations at any time has been very strong or has had much influence on the development of the breed.

CHAPTER XIV

LESSER KNOWN BREEDS OF SHEEP

470. There are a great many little-known (in America) breeds of sheep that are worthy of mention, as some of them have met special needs in special regions, and have qualities to recommend them. There are still others, such as the Welsh Mountain, the Lonk and the Shetland, that are of so little interest to farmers in America, that they may safely be ignored.

471. Barbados or "Woolless" sheep (Fig. 77). By *E. L. Shaw*. — Representatives of this breed of sheep were imported by the United States Department of Agriculture from the island of Barbados, West Indies, in 1904. It is thought to be of African origin. It is hardy and very prolific. The ewes breed at any season of the year, and produce one to five lambs at a time. The young lambs are very attractive. The breed is of medium size and has somewhat of a deer-like appearance. The color varies from a light fawn to a dark brown. The under part of the body and the legs are very dark in color, almost black. The ewes are hornless and the rams are usually so, but in some cases the rams have small horns curving backward and downward. The rump is steep, the tail set low, reaching the hocks. The breed is practically without wool, the body being covered with coarse hair. The small quantity of wool is of very fine fiber. The hair has a decided crimp. The rams have a very decided beard,

which extends from the angle of the jaw almost to the brisket. This breed is considered to be valuable in warm climates for its mutton.

472. Black-face Highland sheep. By *John A. Craig.* — This mountain breed of sheep is most commonly called "Black-Face," although in the effort to be more specific it is frequently referred to as the "Scotch Black-Face" or the Black-Face Highland. It is of medium size, with a bold, commanding appearance, added to somewhat by the fact that both the ewes and the rams have horns. The face is mottled or speckled, the fleece long in fiber and somewhat coarse. The chief point of merit is its thriftiness under conditions that would result in the extinction of almost any other breed of sheep. The mature sheep of this breed are very hardy and easily sustained. They subsist largely on heather and on the roughest kind of land, and withstand extreme exposure during severe storms. The newly born lambs share in this strength of constitution, and they are singularly equipped to undergo exposure by having a short, tight fleece cover them from heel to ear as soon as born.

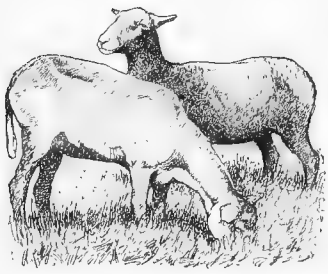


FIG. 77. — Woolless sheep.

The Black-Face may justly claim to be one of the oldest breeds of Great Britain; and being so, their early history is little known. It is commonly thought that they are the original stock of the country. The very earliest mention of these sheep is by a writer, Hector Boethius, born in 1470, who says that until the introduction of the

Cheviot sheep, the rough-wooled Black-Face was the only kind known in the vale of Esk. The breed at the present time has been estimated to comprise about two-thirds of the sheep stock of Scotland, and one-third of the total sheep stock of the north of England.

They are mainly confined to this territory, for their importation to other countries or localities has not been very successful. Some have come to America, being first imported into New York state in 1861; but they have not been popular here.

Black-Face sheep are much used for cross-breeding, but no infusion of outside blood has been successful in improving them for their native conditions. In addition to their hardiness, they have other characteristics which adapt them peculiarly for the Highlands. They are not only capable of traveling long distances on rough ground in search of food, but they also have a peculiar "homing" instinct, based presumably on their strong attachments to certain parts of their grazing.

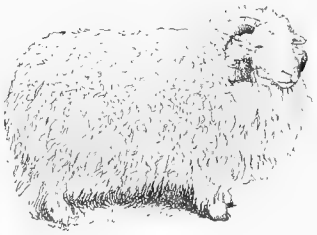


FIG. 78. — Herdwick ram.

473. Herdwick sheep (Fig. 78). By *John A. Craig.* — This is one of the smaller mountain breeds, with the instincts and type of mountain sheep strongly developed. It has a heavy fleece of strong wool; head broad, nose arched or Roman, eye prominent and lively. Horns in the rams are desirable.

The tradition of the origin of these sheep is that they came from forty small sheep that escaped from the galleons of the Spanish Armada that were wrecked on the coast of Cumberland, making the ancestry Spanish.

Macdonald says that in the beginning of the last century a ship was stranded on the coast of Cumberland that had on board some Scotch sheep, which seem to have been unknown in that country. The sheep were landed and turned on the neighboring hills. Their excellent qualities and adaptation to their new situation became speedily evident. Their fleece was considerably finer than that of the common black sheep, and the matted quality of the wool enabled them to endure any severity of weather, and even to pass the whole of the winter without the smallest quantity of hay being expended upon them. By their ceaseless activity they scraped away the snow, however deeply the herbage might be buried under it.

These sheep are credited with living to a very old age, Macdonald stating that the ewes will breed for fifteen or twenty years.

In the English Lake country, the mountains of Cumberland and Westmoreland, in the north of England, these small sheep hold their own against the encroachments of all other breeds.

474. Persiacot and Persiarino sheep. By *E. L. Shaw.* — The Persiacot is a cross between the Persian and the Cotswold breeds. This cross-breed is said to be very hardy, and produces an excellent quality of mutton. The lambs make very rapid gains, and are in demand at good prices. The Persiarino is a cross between the Persian and the Merino breeds. This cross-breed is said to produce a very hardy sheep and an excellent quality of mutton. All grades of these crosses are said to be fertile. The Persian resembles the Tunis, has a fat tail, and dark, hair-like wool. It has been used in a small way in the West for crossing.

475. Romney Marsh sheep. By *John A. Craig.* — This breed takes its name from the district known as Romney Marsh in the counties of Kent and Sussex, in the south of England, which has led also to its being spoken of as the Kent breed.

The Romney Marsh (Plate XII) may be said to be one of the largest of the lowland breeds, being surpassed in weight only by the Lincoln. It has a broad, white face, and most frequently a tuft of wool on the forehead. It does not have horns. The native or original stock of the breed was large and coarse, but it is likely that the infusions of Leicester and Lincoln blood added both to its weight and improvement of appearance. The type is long and low, with comparatively thick legs and feet, and a strong-boned frame. The wool is long, comparatively fine, and the weight of the fleece from six and one-half pounds upward.

The special utility of the breed is its adaptability to low-lying lands which produce luxuriant feed, and will stand heavy stocking. The Romney Marsh may be run more thickly on such ground than any other breed, and continue thrifty. Under such conditions, it attains a large size and heavy weight, and the records of Smithfield and other British shows bear out the statement that it is rarely surpassed in the latter by any breed excepting the Lincoln.

476. Ryeland sheep (Fig. 79). By *W. L. Carlyle.* — The Ryeland breed of sheep originated many years ago in the midland counties of England. Its name comes from the Ryelands of Hereford, a poor upland district. The breed originated by crossing Southdown and Leicester rams on the old Morfe Common type of sheep, from which the Shropshire breed originated. In its blood

lines it is similar to the Shropshire and the Morfe Common sheep, being leggy, with light fleece and a speckled black and white face. The Ryeland breeder selects the lambs with the white faces and legs, and the Shropshire breeder takes those with the dark faces and legs. The Ryeland is a very compact and hardy sheep, and fattens very readily. In form, it is thick and heavy in the hind-quarters, with broad, level back, full round body, a little inclined to be coarse in the shoulders, short, well-set neck, and broad head, with some wool covering on the head. Its legs are short and straight. The Ryeland is an active, vigorous sheep, midway between the Southdown and the Shropshire in type and adaptability. Both the lambs and the ewes of the Ryeland breed are hornless, and the wool is finer in character, perhaps, than that of any of the other medium-wool breeds.

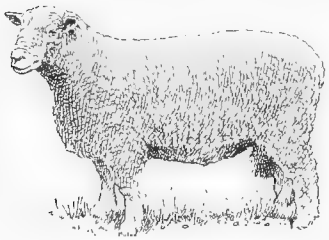


FIG. 79. — Ryeland ram.

The first importation of the Ryeland sheep into America was made by George McKerrow, of Pewaukee, Wisconsin, early in the summer of 1907, for the Colorado Agricultural College. The breed has been but a short time in this country, but it is well adapted for the mutton-producing sections of America. The lambs are dropped very fat, and the ewes are wonderfully good mothers. They seem to cross well with both the Southdowns and Shropshires. The fleece of the Ryeland is not so heavy nor so dense as that of the Shropshire, but it is longer and finer in the staple.

477. Tunis sheep. By *David McCrae.* — Tunis is a

province of North Africa bordering on the Mediterranean sea. Much of the land is hilly. The fat-tailed sheep living in the upland region of the province are called Tunis sheep.

They are generally hornless; face and legs of a yellow-brown or tawny color; a few are brown or mottled brown and white. The tail is broad, being five to ten inches wide, and is usually docked to about six inches. The ears are large, broad, pendulous and covered with fine hair. The fleece is soft, fine and fairly compact, about three inches long, and varies in color. One may have a fleece almost white, another reddish, and another mottled. Mature specimens weigh 120 to 150 pounds.

The origin of the Tunis breed is unknown. The type has no doubt existed in Tunis for centuries, and also in the adjoining sections of North Africa. Similar fat-tailed sheep are found in Syria and are supposed to be derived from a variety of the primitive race bred by the patriarchs and the early shepherds of Palestine and adjacent lands.

The introduction of Tunis sheep to America is said to date back to 1779, when the Bey of Tunis allowed General Wm. Eaton, then United States Consul at Tunis, to ship to America several "broad-tailed Barbary or Mountain Tunis sheep." Only one pair reached the United States. These were placed in the care of Judge Richard Peters, on his farm near Philadelphia, where they did well and increased in numbers. The original ram was afterwards used on the farm of General Hand, in Lancaster county, Pennsylvania. In 1807 or 1808, another importation was made by Commodore Barron of the United States navy. These were bred in Virginia and the District of Columbia. In 1825, another importation was made,

some of which went to near Albany, New York. From the early Peters flock, these sheep spread into Georgia and South Carolina, and were common in the South before the Civil War, which nearly exterminated them. More recently Roundtree, of Indiana, has been a leading promoter of the breed. There are several flocks in Indiana and Ohio. In 1876, an American Tunis Sheep Breeders' Association was organized.

The Tunis as a mutton sheep has met with much favor. The lambs fatten early, and as the ewes will breed at various seasons they have been used to raise lambs for the Christmas market. Cross-bred lambs are popular, as they are easily and quickly fattened and yield mutton of an excellent quality. As a wool-producer, the Tunis does not rank high. The color is objectionable, and the weight of the fleece is only six to eight pounds.

478. Wensleydale sheep (Fig. 80). By *John A. Craig.* — Being included among the lowland breeds, these sheep have the characteristics most common to sheep of that class, namely, large size, with long wool, thereby attaining heavy weights of both carcass and fleece. The Wensleydale is an upstanding sheep, similar to the Leicester in some respects, but with more style. The face and skin are of a bluish tinge, and this characteristic is encouraged, while in nearly all the other breeds a pink skin is sought, and the bluish tinge considered undesirable. The wool of these sheep is peculiar in that it is unusually lustrous, and is very wavy or full of "pirls,"



FIG. 80. — Wensleydale ram.

as they are called. It is long, strong and comparatively fine, considering its length.

The original stock of this breed seems to have been most prevalent in Yorkshire, and at an early day it was known as the Teeswater. The new name of Wensleydale Longwool was attached to it about the time the Yorkshire Agricultural Society began giving prizes for it, it being more common in Wensleydale than in any other district. Its origin seems to be akin to that of the old Leicester breed, and later infusions of Leicester blood undoubtedly have been made. The present type and characteristics have long been fixed, however.

The rams are used to cross on Black-Faced ewes, as it has been found that the cross-bred product makes a good feeding-lamb, and they have the additional desirable qualification of throwing dark-faced lambs.

The breed is confined closely to its native district, few having been exported to other countries. The most notable introduction of Wensleydale sheep to America was the importation made by the Wyoming Agricultural Experiment Station, which is said to be giving promise of valuable results. Aside from this, little attention has been given the breed in this country.

The Wensleydale has two societies and flock-books devoted to it — the Pure Select Wensleydale Sheep Breeders' Association, with headquarters at Carperby, Bedale, England, and the Wensleydale Longwool Sheep Breeders' Association and Flock-Book Society, with headquarters at Howgrave, Ripon, England.

CHAPTER XV

GOATS

THE goat, *Capra* spp., *Bovidæ*, is a genus of quadrupeds, very closely allied to the sheep. It seems probable that the domestic goat is descended from the Persian pasang (*Capra ægagrus*), which is the most characteristic species of the wild goats. The types of domestic goats that have been developed under their long period of domestication are very numerous, but comparatively few are of economic value in America. Perhaps the Angora (*Capra angorensis*) is the best known in this country, although the interest in milch goats is increasing. The zoölogical origin of the Angora goat is not known. The prevailing opinion seems to be that the foundation stock is some derivative of *Capra ægagrus*, perhaps with crosses from the markhor (*C. falconeri*) or other wild Asian species. The goat has never been held in high esteem in America, but this attitude may change.

Mention should be made of the Cashmere or Shawl goat of India, which is valued for its fine, silk-like underwool, much prized in shawls. "Mountain goat" is mentioned under *Sheep*.

ANGORA GOAT. Fig. 81.

By *E. L. Shaw*

479. The Angora is raised primarily for its mohair and meat. The male goat is called a buck, the female a doe, the castrated male a wether, and the young a kid.

480. Origin. — The Angora goat derives its name from the vilayet of Angora, in Asia Minor. The city of Angora is the capital of the vilayet of Angora, and is located about two hundred miles south-by-southeast from Constantinople. The province is mountainous to a considerable extent and furrowed by deep valleys. The climate is extreme. Some writers have ventured to say that the Angora goat originated in this district over 2400 years ago.

It is said that the pure Angora goat was nearly bred out in 1863. The reason for this was the extensive crossing with the common Kurd goat.

481. History in America. — The first importation of Angora goats to America was made in 1849. During the administration of President Polk, says Colonel Richard Peters, the Sultan of Turkey requested that a suitable person be sent to that country to conduct some experiments in the culture of cotton. James B. Davis, of South Carolina, was delegated. On his return to the United States in 1849, the Sultan presented to him nine choice Angoras. These animals were imported as Cashmeres, and were so regarded until after they were purchased by Colonel Richard Peters in 1853. This importation was frequently exhibited at fairs, and always attracted much attention. Colonel Peters is generally regarded as the real founder of the Angora goat industry in America.

There have been, from time to time, various other importations of Angoras from Turkey and South Africa. These are widely disseminated, and the blood of most of them has been beneficial to the industry in this country. The Civil war was disastrous in its effects on the industry, and the Angora goats in the southern and eastern sections of the country were practically exterminated. The western men who adopted the industry, and finally saved

it, were William M. Landrum, C. P. Bailey and John S. Harris.

482. Description. — The Angora goat was formerly described as a small animal, but, owing to favorable conditions, its size has been greatly increased (Fig. 81). It is smaller than the common goat, weighing sixty to one hundred pounds, although specimens are frequently found that weigh considerably more. Both males and females have horns and beards, but in rare instances an animal without horns may be seen. The horns of the male grow to a length of fifteen to twenty inches and turn upward and outward with a backward twist, while those of the female, which grow to a length of eight to ten inches, grow upward and point backward, with only a slight inclination to twist. The horns are grayish in color, never black. The body should be round, the back straight, with shoulder and hips of equal height. The chest should be broad; legs short and strong; head broad, with a wide muzzle and bright eyes; ears either partially upright or distinctly pendent, and six to eight inches long. The fleece should be pure white, covering all parts of the body, as dense on the belly and neck as on the back and sides, and it should extend to the ears and the jaw. Many Angoras have mohair on the forehead, face and legs. The mohair should make an annual growth of not less than eight to ten inches, and weigh three to five pounds per fleece. It should hang in well-formed ringlets from all parts of the body, and should be fine, soft, lustrous and strong.



FIG. 81. — Angora goats.

The fleece should be free from kemp. The fibers become coarser, thinner and straighter as the animal grows older. The best mohair grows on goats of the best blood; and among these, that on the kids, yearling wethers and does is superior in the order named.

The offensive odor from the bucks of the common goat is entirely absent in the Angora breed, except at the rutting season, and then it is noticeable only in a slight degree. The odor in a fleece of mohair is milder than that in a fleece of wool.

483. Types. — Some strains of Angoras have fox-like ears, but those with the pendent ears are preferred. In this country, care must always be exercised to cull the off-colored kids from the flock. These may be the result of atavism, from a cross made on a common goat, either red or black. It is reported that different colors are found in the province of Angora among what were supposed to be pure-bred animals. Some Angoras have very little or no mohair on the forehead and legs, while others have a tuft on the forehead, and the legs are well covered down to the feet.

484. Distribution. — Angora goats are widely distributed throughout America. They are found in almost every state and territory in the Union, the largest numbers being in Texas, New Mexico, California, Arizona, Oregon and Montana. They are found in large numbers in Cape Colony. The census report for April, 1904, gives the number in Cape Colony as 2,775,927. It is estimated that in 1894, there were over 1,230,000 Angoras in Asia Minor.

485. Breeding of Angoras. — Goats of both sexes will sometimes breed when they are five or six months old, but from the fact that at this age they are but a month or two from weaning time, and are not fully grown, it is

obvious that they should not be permitted to breed. They reach maturity when about sixteen or eighteen months old, and they should not be bred before this time. If bred earlier, the kids will not be so strong, nor so well developed. The goats are in their prime when two to six years old. Does should not be kept until they are very old, unless they produce kids of exceptional merit, for their mohair becomes coarser and less valuable as they mature. The average life of goats is about twelve years.

Bucks usually come in heat about the middle of July, and continue so about six months. Does do not usually come in heat until the latter part of August or the first of September. The period of gestation is 147 to 155 days. The kids should not come before the warm days of spring, or when vegetation begins to put out vigorously. The only objection to early kidding is the extra care required to preserve the life of the kids, for they are delicate for the first few days.

A buck should be in the best possible condition when put to service, and should be fed some grain during the breeding season. For the best results, about forty or fifty does should be allowed to a buck. The pure-bred Angora does not often drop more than one kid at a time, while the common goat nearly always drops two. The kidding season is the most important in the life of the goats. For several days after the kids are dropped, they naturally demand good care. After a few weeks they are able to care for themselves, and can follow the flock.

A few days before a doe is due to kid, she should be separated from the flock. Some breeders would put her alone in a pen, while others would put as many as twenty in one pen. If the facilities are at hand, a small pen for

each doe is better, for the reason that the doe will own the kid sooner, and there will be less danger of injury. If kids are dropped on the range or in the pasture, they must be carried home and special care given to see that the does are made to own them, for many times they will refuse, especially if they have no milk.

There are in use two methods of handling the does and kids at kidding time, namely, the corral method and the staking method. Each of these methods has its advantages.

(1) The corral method may be used with any number of goats. When a large number of does are expected to kid, it is necessary to have one or two large corrals and several smaller ones. The does expected to kid, or those that have kidded, are put in the small corrals, and after a day or so are removed to one of the larger ones. This procedure is repeated until all the does have kidded.

(2) The other, the Mexican or "staking method," is used largely in Texas and New Mexico. When a kid is born, it is taken to a convenient place to "stake" and the mother is coaxed to follow, and the kid is "staked" or "toggled" with a string about twelve inches long. This string is tied to one leg, being changed occasionally from one leg to another to avoid lameness. The string should have a swivel on it to prevent twisting. Kids are usually staked for a week to ten days.

Kids should not be weaned until they are about four months old. The buck kids, not intended for breeding purposes, should be castrated when about two weeks old. The earlier it is done, the better will be the meat and mohair.

No amount of cold will prove injurious to goats if they are kept dry. A shed of easy access is one of the essentials

of goat-raising. Angoras are able to withstand both extreme heat and extreme cold if proper shelter and feed be provided. They require a large amount of fresh air and exercise.

486. Feeding. — The browsing habit of goats is an important factor in their feeding. In some sections, they secure browse all through the winter season, as in the Southwest, where there is an abundance of live-oak. Corn fodder, cowpea hay, clover hay and alfalfa are all excellent coarse feeds. Oats, corn and bran are valuable winter rations. Goats require more salt than do sheep, owing to the more astringent character of their feed. A running stream in a pasture is valuable, but if it is not present, good, fresh water should be supplied.

487. Marking. — Several devices for marking goats are in use, but the metal tag in the ear is probably best known. A practice which appears to give satisfaction is to tattoo the numbers into the ear, using indelible ink. It is found that the metal is sometimes pulled out by brush.

488. Shearing. — In Texas, New Mexico, Arizona and sometimes in California, shearing is done twice a year, usually in the months of March and April, and in September or October. The reason for this practice is that, owing to the warm climate, the fleece will often shed in the fall if not clipped. In other parts of the country, shearing is done but once a year, and that in the months of March, April and May. The shearing machines largely employed among sheep-raisers are coming into general use among goat-breeders.

Goats are not so gentle in the hands of the shearer as sheep, and many men, especially among beginners in the industry, desire to know how best to handle them during the operation of shearing. For this purpose, a simple

combination trough and table was devised by F. W. Ludlow, of Lake Valley, New Mexico. This table is first used in the shape of a trough. The goat is placed in it on its back and held down by means of a strap across its throat. While in this position all the underparts, sides and legs may be worked on. In machine shearing, it is a good practice to start at the brisket and shear all the belly as far back as possible; then shear the front legs and neck; then start at the hocks and shear up the hind-legs and along the sides to the point of beginning. After shearing one of the sides allowed by the trough, the goat is tied — "hog tied," to use a western expression — that is, all four feet are tied together. The sides of the trough are now dropped, forming a table on which to finish the operation. There is now free access from the tail to the head, and the goat remains helpless. The proper course is to leave all the fleece on the table until the goat is liberated, and then roll it up inside out.

Ludlow's description of this table is given herewith: "The table is simple in construction. It is about 22 inches high, 2 feet 10 inches long and 21 inches wide. The top is composed of two 9-inch sides, which are hinged to the 3-inch centerpiece. On the lower side of these movable flaps is a narrow piece 8 inches long, which catches on the framework of the table when the sides are lifted and holds them stationary. When the sides are elevated, the top of the table forms a trough 3 inches wide at the bottom and possibly a foot wide at the top. Into this trough the goat to be shorn is thrown, feet up. A small strap, which hangs from the end of one of the sides, is run over the goat's neck and fastened to the other side. The goat's head is hanging over the end of the table and the strap prevents it getting free. The belly and legs are

then shorn. The legs of the goat are then tied together, the strap removed from the neck, and the sides of the table dropped, so that one has a plane surface on which to shear the rest of the animal. An untrained man can shear 100 goats a day with a shearing machine and such a table."

Few breeders wash their goats before shearing, and if the animal has been properly cared for during the winter and early spring, washing is not necessary. Breeders find it to their advantage to ship the mohair in as clean a condition as possible. Colored fleeces, tag locks, mohair that is clotted and that which is dirty, should be packed separately. As kid hair is usually the finest, it should be packed by itself; the doe hair and that from the wethers may be placed together. Fleeces should not be tied with twine, as parts of it are likely to adhere to the fleece, and can be removed only by great care and effort. Fleeces from Turkey and Cape Colony are not tied at all, but are simply rolled up inside out; this is the condition in which the mills desire to receive them.

489. Uses of Angoras. — The Angora goat is considered one of the most useful of the domestic animals, and has been so held from remote times. This usefulness is manifested in many ways.

The mohair. — The fleece, called "mohair," is used extensively in the manufacture of plushes. It is not generally known that practically all of the plushes used in railway passenger coaches and street cars are made of mohair. Besides these plushes, which are usually plain, large quantities of frieze and crush plushes are used in upholstering furniture. The designs for the frieze plushes are limited only by the ingenuity of man. The carriage robes, couch covers, sofa-pillow covers and rugs are dis-

tinguished by their high pile and rich coloring. Most of the so-called astrachan now in use is made of mohair.

Besides plushes, dress goods of various designs, coats and coat-linings, table covers, knit mits, mittens and gloves, are made from mohair.

In addition to the mohair, there grows on the Angora goat coarse, chalky white, stiff, straight hair, varying in length from half an inch to four inches, technically known as "kemp." It is generally thought that kemp is a relic of the common goat blood in the Angora, as it is a matter of history that the Angora flocks of America, as well as those of Asia Minor and South Africa, have been largely increased by crossing does of common blood. It is objectionable.

The skins. — The skins of the Angoras, if taken when the hair is about four inches long, make very handsome rugs. The hair retains its original luster, and may be used in the natural white, or dyed any color desired. Carriage-robes are frequently manufactured from the skins. The smaller skins of the does, wethers and kids find a use as robes for baby carriages, and are extremely attractive. The skins are also used in the manufacture of children's muffs, and as trimmings for coats and capes. The finest kid fleeces adorn the collar and border of some of the ladies' opera cloaks.

To clear brush land. — Goats are browsers by nature, and there is no vegetation they will eat in preference to leaves and twigs of bushes. The Angora has been used in many parts of the country for clearing land covered with brushwood. In localities where valuable land is completely overgrown with brushwood, the goats are considered of more value for clearing it than for their mohair or meat.

The milk. — The Angora is not primarily a milch goat, and is not often employed for that purpose. Information at hand shows that the quantity of milk given by an Angora doe is uncertain, and in exceptional cases only does it approach in quantity that produced by the established breeds of milch goats, such as the Toggenburg, Saanen, Maltese and Nubian.

The meat. — The flesh of Angora goats is exceedingly nutritious and palatable. When properly fattened, they produce a meat so nearly like the best lamb that it takes an expert to detect the difference. A large number of Angoras are slaughtered annually in Texas, Arizona, New Mexico and California. In Cape Colony, it is said that old does are slaughtered to furnish meat for farm hands, and young wethers are sold to butchers in the towns.

Kansas City is the leading goat market, over sixty thousand head having been sold in this one market in one year.

Protection for sheep. — There is very little complaint heard from breeders of Angora goats concerning the ravages of dogs. Bucks can be trained to fight dogs and thus be a protection to sheep. A few goats will stay with a flock of sheep, but if there are many of them they will be likely to separate.

Pets. — As pets for children, Angora goats are popular. They are remarkably intelligent and are easily trained. They are often harnessed to carts.

490. Organizations and records. — The American Angora Goat Breeders' Association, organized in 1900, maintains the only record of pure-bred Angora goats in America. This organization has a membership of over five hundred breeders, representing nearly every state and territory in

the Union. Over sixty-five thousand animals are recorded in the Angora Goat Record.

Literature. — George Fayette Thompson, Angora Goat Raising and Milch Goats; William L. Black, A New Industry; C. P. Bailey, Practical Angora Goat Raising; Gustav A. Hoerle, The Angora Goat: Its Habits and Culture; John L. Hayes, The Angora Goat: Its Origin, Culture and Products; S. C. Cronwright Schreiner, The Angora Goat; George Edward Allen, Angora Goats, the Wealth of the Wilderness; C. P. Bailey, California Angoras; E. H. Jobson, Angora Goat Raising; George Fayette Thompson, Information concerning the Angora Goat, Bulletin No. 27, Bureau of Animal Industry, United States Department of Agriculture; George Fayette Thompson, The Angora Goat, Farmers' Bulletin No. 137, United States Department of Agriculture. This article is largely adapted from the bulletins on Angora goats prepared by the late George Fayette Thompson.

Milch Goats. *Capra hircus.* Figs. 82–84.

By *William C. Clos*

491. The breeding of goats for the production of milk is a growing industry in some parts of America. In the development of the dairy type, numerous breeds and varieties of goats have been produced, adapted to meet different conditions.

492. Description. — According to the best authorities, the following general points and qualities are applicable to all types of milch goats. They must possess good forms, indicating constitutional strength and high productiveness. The head must be light (dry), eyes fresh and lively, horns (in all horned breeds) small, neck broad, breast wide, ribs well sprung, back long and straight, hips broad and strong, legs sinewy and straight. Healthy

claws, a fine, thin skin and a well-developed, but not too pendent, udder (Fig. 82) and good teeth are also necessary requisites.

493. General history. — Goats are among the oldest domestic animals, and have contributed their share to the subsistence of mankind as far back as historic evidences reach. Rutimeier discovered their remains among the ruined piles of the ancient lake-dwellers in Switzerland. Goats and their products are mentioned frequently in the Bible, and by Herodotus and Homer, and have maintained their popularity, especially among oriental nations, to this day.



FIG. 82. — Milch goats with udders too pendent.

The question of their origin is still in dispute. According to Julmy, a majority of zoölogists maintain that the European goat is descended from the Persian Pasang or Bezoar goat (*Capra ægagrus*), while others seem to trace it to the alpine Ibex (*Capra ibex*).

Whatever may have been their origin, they have exerted a strong influence on the economic welfare of the peoples among whom they have been found. Their growth in numbers, outside of America, has been noteworthy; although even in this country their popularity is increasing. The following statistics indicate their popularity. G. F. Thompson states, in his "Information concerning Common Goats," published in 1903, that there were 1,871,252 goats of all kinds kept on farms in the United

States, as reported in the census for 1900, representing a total value of $3,266,080. Besides these, there were 78,353 goats reported for cities and villages, which would bring the total up to 1,949,605 head. He estimates the number of Angoras at 700,000, and the remainder, he says, " are all sorts of animals except recognized breeds of milch goats, of which there are so few as not to affect the total materially." This is indeed a small number, but it indicates the need as well as the possibilities of improvement.

European statistics give far more satisfactory results. Germany had (in 1883), according to Dettweiler, 2,639,904 milch goats; Switzerland (in 1896) possessed 416,323 head (Stebler). Pegler, in his work (The Book of the Goat), gives the following figures: France, 1,794,837; Russia, 1,700,000; Austria, 979,104; Spain, 4,531,228; Italy, 1,690,478, and the grand total for continental Europe as 17,198,587 head. The Yearbook of the United States Department of Agriculture for 1906, in its statistical columns, gives the total number of goats for South American countries as 5,662,239; North and Central America, 6,296,192; Africa, 17,557,590; Asia, 40,557,402, while Australia (total Oceanica) is marked down to a total of only 114,865 head.

494. History in America. — As has been said, little effort has been put forth to improve the common goat of America, and no important milking strains or families have been produced. It is only under the stimulus of recent importations of some of the best European types that interest in goats for milk production has sprung up. The first importation on record was that of W. A. Shafor, of Ohio, who brought over four Toggenburg goats in 1893. The next importation of note was made by F. S. Peer, of

Ithaca, New York, in the spring of 1904, when he brought over a large number of Toggenburg and White Saanen goats for individuals in Massachusetts, New York, New Jersey and Maryland. In 1905, the United States Department of Agriculture became interested, and through G. F. Thompson imported sixty-eight Maltese goats for experimentation in America. The results of this experiment were not satisfactory.

495. Distribution. — At the present time goats are distributed over a large part of the globe, but it is to be regretted that statistics furnish but very meager information in regard to their dissemination. Such statistics as are available indicate that they are found in larger or smaller numbers in nearly every inhabited land. In America they are widely scattered. An idea of their geographic distribution will be gained by reference to the statistics given above.

496. Breeds and types. — Following are brief notes on the most prominent breeds and types.

The Nubian milch goat is a long-legged goat, with generally a polled head, sunken nostrils, projecting lower jaw, long, hanging ears in most specimens, large, well-shaped udder and teats. The color is brown or black. The hair varies in length. It is native in Nubia, northern Egypt and Abyssinia. Huart du Plessis and Pegler recommend this breed very highly because of its large size and unsurpassed milking qualities, giving four to twelve quarts per day. However, it is very sensitive to cold and for that reason is not adapted for northern climates. Its ameliorative value, however, is not to be lost sight of in cross-breeding experiments, especially with southern varieties, as the New Mexican.

The Maltese goat. — According to Thompson, this type

is about two feet and six inches in height and will often weigh 100 pounds. It is usually hornless, and the predominating color is white, although there are many other colors, as red, brown and black. The ears are moderately long and horizontal. The body is low and stocky. It is said that the milking quality of the breed has been so perfectly developed that nearly every doe kid becomes a good milker. The udder is large and is carried low, and yields two to four quarts of milk daily. In Malta it is asserted that Maltese goats never do well when exported.

The New Mexican goat. — By this somewhat arbitrary name is distinguished the only native American breed of goats known. They are common in New Mexico, Texas and the Southwest, where large numbers of them are kept by the Spanish-speaking populace. They are not uniform in color and size, but have the reputation of being fairly good milkers.

The Spanish-Maltese goat. — B. H. Van Raub, of Van Raub, Texas, is the most prominent breeder of this type, and his efforts in improving and developing this variety are said to have given to the United States the first pure-blooded breed of milch goats of its own. Thompson indicates that these Spanish-Maltese represent several varieties.

The Toggenburg milch goats (Fig. 83) are one of the oldest and best known of the numerous breeds of milch goats in Switzerland. They are hardy and hornless, and their slender bodies are covered with silky hair of varied length and of a peculiar brown color. The males carry a heavy, coarse beard. The legs and ears are white, the latter of medium length and well carried. The breed is further distinguished by two white stripes on their heads, running parallel on each side of the face from the ears to the mouth, and also by two peculiar small cartilaginous

appendages or "wattles" on the side of the neck, called "zoetteli." (These "wattles" are not, however, peculiar to Toggenburgs, but are found in nearly all breeds of goats.) The Toggenburgs are splendid milkers, yielding four to six quarts daily, and carry the well-developed udders rather high. They bear confinement well, a fact that should not be underestimated in considering this breed.

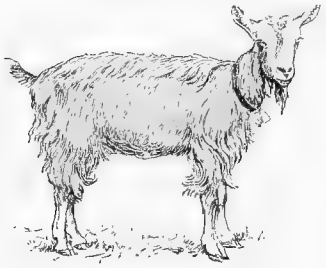


FIG. 83. — Toggenburg milch goat.

The White Appenzeller goat may be regarded as a white variety of the Toggenburg breed, and is native in the Canton Appenzell adjoining the Toggenburg valley in Switzerland. Like the Toggenburg breed, it is large, hardy and productive.

The White Saanen goat (Fig. 84) is another very popular Swiss breed. It is generally hornless and of large size. It is a good milker, and has been exported extensively from Switzerland for ameliorative purposes.



FIG. 84.—White Saanen goat.

The Black-necked Valaisan goat is a very pretty and attractive variety covered with long, silky hair, black on the head, neck, breast and front legs, and snow-white on the entire middle and rear parts of the body. It is a fairly good milker, has a splendid constitution, but does not thrive under continuous confinement.

497. Management and feeding. — Milch goats are very prolific, much more so than Angoras or sheep. They usually drop twins and often triplets, and as their period of gestation is only about five months, they increase very rapidly, because they will breed shortly after kidding, and yearling does are fit for reproduction. Bucks should be chosen carefully; only those descended from good milking dams should be used, and then only when they are of good form and constitutional vigor. Because of their repulsive smell, bucks should be kept entirely separate, and as far away from the does as possible.

Milk from rutting does should not be used for domestic purposes. Observance of this rule will effectually prevent the complaints that goat's milk has a bad taste. Breeding should be so managed that does will kid three times within two years, and if several animals are kept, their lactation periods may be easily arranged so as to provide a steady and even supply of milk for their owners. The lactation period is about five or six months in the milking families.

Cleanliness is absolutely necessary when goats are confined in stables. These animals are sensitive to cold and damp and therefore should be kept in warm but light stables, with always dry bedding. They like variety in their feed, and this peculiarity should not be overlooked. They should be given clean, sweet hay, and the good vegetable trimmings from the kitchen. A handful of oats or a little bran is a very good addition to the ration, especially during the period of heavy lactation. They must have salt regularly, and as much clean water as they will drink. In the winter they should have provided for them occasionally, if possible, some hazel-brush, birch, maple, box-elder, or similar twigs. They like to nibble such things

and will pay for the trouble. Willow, oak or any other bitter or acid barks should not be used for this purpose, because they impart unpleasant tastes to the milk. In the summer a good pasture having a variety of forage and fresh water is a splendid place for them. If these directions are observed, goats will give good wholesome milk plentifully. If the milk has an uncommon flavor, the cause is usually in the feed, unless the animals are sick.

If pasturage is not available, then they should be let out into a clean yard daily, for they must have exercise, as in their natural environments they like to romp and play. Fences must be tight, otherwise the goats will get out even in places where it would seem almost impossible for them to crawl. All braces should be on the outside, and no boards should be allowed to lean against the fence, otherwise the goats will climb over. Breechy goats should be provided with so-called " puzzles " or frames.

Kids should be separated from their mothers and fed from a nursing-bottle, because their mother's teats are usually too large for them. They should be weaned gradually, and, when they are accustomed to eat well, they will readily take care of themselves, as long as they have plenty before them to eat. Young bucks that are not needed as reproducers should be castrated early and butchered when a few months old. Their meat is then even more of a delicacy than lamb.

498. Use for milk. — Contrary to common opinion, goats have decided virtues and capabilities that will eventually gain for them a prominent place in the estimation of the people, especially among the working classes in the suburbs of large cities, and it is not at all improbable they they may win favor even with the rich.

The principal value of the milch goat is its eminent

milk-producing quality. While it has thus far been of relative unimportance in this country for its milk, this is not true in many other lands. In Switzerland, milch goats are commonly called the "poor man's cows," and well they may, as they take the place of cows not only because of their cheapness and the comparatively low cost of their keep, but also because they enable poor persons to enjoy the advantages usually derived by the better situated classes from their cattle, under conditions absolutely prohibitive to the successful maintenance of milch cows. In that mountainous land, three or four well-kept milch goats of good breeding are commonly rated equal in milk-producing qualities to an average cow, and six to eight goats may be kept on the quantity of feed required for one cow. It should also be borne in mind that two or three goats properly managed will provide a steady supply of milk the year round, while the single cow does not. Goats also are not nearly so susceptible to the diseases that have proved to be such dangerous enemies to mankind, from the fact that they can be transmitted by cow's milk. It is generally held that goat's milk is much more wholesome than cow's milk. Goat's milk may be used fresh or cooked, just as cow's milk, and is recommended as preferable for infants and invalids by the best medical authorities. Milch goats are most productive at four to eight years of age, and may live to be twelve or more years old.

Dr. Kohlschmidt's experiments on the milk-yield of goats, conducted with twenty-four animals in Saxony, demonstrated an average yearly quantity of 725.7 litres a head. The highest yield ascertained by him was 1077.5 litres; the lowest, 612.37 litres; the average per cent of butter-fat obtained was 3.43 per cent (maximum 4.41 per cent). Huart du Plessis cites the example of a pure-bred

Nubian goat giving an average of 4.5 litres a day, with 8.5 per cent butter-fat. This author estimates the capacity of a good milch goat at two litres a day for 270 days each year. Professor Anderegg says that there are four breeds of Swiss goats capable of a daily yield of four litres per head. Stebler states, on the authority of a Swiss farmer, that the total yearly expense for keeping a common goat, exclusive of summer pasturage, is a trifle over $2 in American money, against a yearly income of above $5, or a profit of over $3 a year on an investment of about $7.

499. Other uses of milch goats.—Butter may be made from goat's milk, but, owing to the irregular size of the fat globules, the cream is very slow to rise. The milk should be carefully and very slowly heated on the back of a stove until a wrinkled scum forms, and then be removed to the pantry for further rising. The longer time it takes to heat, the more cream is secured. In churning, coloring must be added, or else the product will be as white as lard, owing to the whiteness of the milk. Perfect cleanliness and special care are necessary or the butter will develop a bitter taste.

Goat's milk makes most excellent cheese, as all who have ever been treated to " tome de chèvre " or " Geisskaes " in Europe will admit. The milk of goats is an ingredient that enters largely into the manufacture of very expensive kinds of cheese, as the famous Roquefort, Mont d'Or, Levroux, Sassenage and others. Goat cheese has the disadvantage that it usually will not keep well unless extra care and pains are taken in its manufacture and cure. For ordinary use, however, the process is as simple as that employed in the making of any common home-made curd cheese.

As their name indicates, milch goats are not intended as meat-producers. The flesh of older animals, therefore, is of minor quality, although capable of great improvement

by proper fattening. The flesh of well-fattened older goats may be rendered very toothsome by smoking and drying. Kid meat is esteemed as a popular delicacy in Europe and elsewhere.

The skins of milch goats are important articles of commerce, furnishing, as they do, the raw material for the finest leather (kid, morocco, saffian and the like). At present, most of the hides used for this purpose are imported. This may very readily be made an important source of income wherever goats are kept in numbers. It is a means of profit that has been underestimated in this country.

500. Organizations and records. — In November, 1903, The American Milk Goat Record Association was organized to care for the interests of milch goats in America, and to promote the importation of good types. A registry is maintained, entrance being based on milk-production and satisfactory ancestry and individual qualities.

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PART IV

BREEDS OF SWINE

Fat or Lard — Page 415

- Berkshire
- Poland-China
- Duroc-Jersey
- Chester-White
- Hampshire
- Cheshire
- Victoria
- Essex
- Suffolk
- Small Yorkshire

Bacon — Page 450

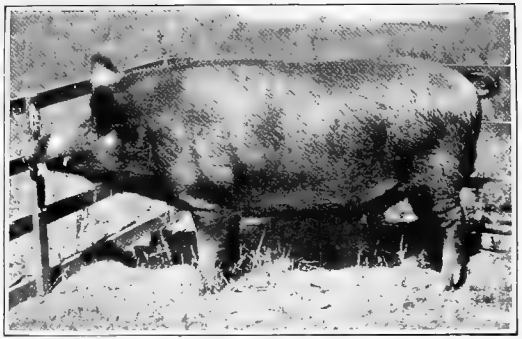
- Large Yorkshire
- Tamworth

Lesser Known Swine — Page 460

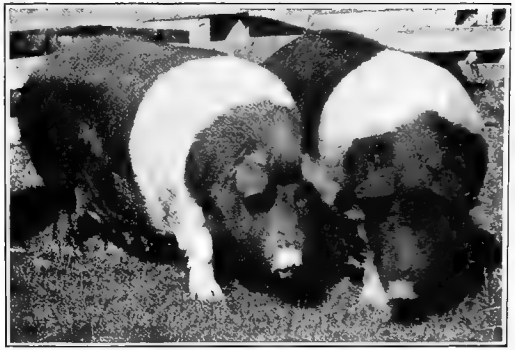
- Chinese
- Neapolitan
- Siamese
- Large Black
- Middle White or Middle Yorkshire
- Lincolnshire Curly-Coated
- Razorback

PLATE XV. — Breed Types of Swine.









CHAPTER XVI

THE FAT OR LARD BREEDS OF SWINE

The differences between typical representatives of the lard breeds of hogs are marked, yet they are all primarily short legged, broad, deep and smooth, conforming to the block or meat type common to the beef steer and mutton wether. Smooth shoulders and trim sides, broad, thick backs and loins and full, deep hams in hogs from 250 to 300 pounds weight attained in the shortest feeding period constitute the standard applied to all market fat hogs, irrespective of breed.

Berkshire Swine. Plate XV. Fig. 85.

By *G. E. Day*

501. Berkshire swine are of the "fat-hog" type, and are greatly valued in America, ranking among the first in popularity.

502. History in England. — The name Berkshire comes from Berkshire in England. The breed is not by any means confined to this county, but is now spread all over the British Isles. The original Berkshire was of ancient origin, and very little is known regarding its origin. The color of the old Berkshire was commonly a sandy, or reddish brown, spotted with black, or white with black spots. It was very much coarser than the present type

and possessed lopped ears; but even in its unimproved state, it had a reputation for producing a good quality of meat.

As to the method of improvement, it is said by some that black Siamese boars were used on the old Berkshire sows, and some persons state that white, and black and white Chinese boars, were also used. It is easy to understand how breeds of the type of Siamese and Chinese swine should be eminently well adapted to modifying the original coarse type of Berkshire. A. B. Allen favors the theory that Chinese blood was used to some extent, and from his investigations in England, fixes the beginning of improvement in the Berkshire by crossing at some time previous to 1780.

503. History in America. — According to Allen, the first importation of Berkshires to America was made in 1823, by John Brentnall of New Jersey. The next importation was in 1832, and great numbers have been brought into the United States since that time. It is stated that the first importation to Canada was made about 1838. Coburn states that for ten years subsequent to 1831, speculation in importing and selling Berkshires at inflated prices was rife in the United States, and that the methods employed by speculators did much to prejudice persons against the breed, and seriously retarded its progress. The breed has outlived this prejudice, however, and has firmly established itself in the confidence of both American and Canadian farmers.

504. Description. — The Berkshire is a stylish, handsome hog, the best type being of rather more than medium size, although not so large as the Large Yorkshire or the Tamworth (Fig. 85 and Plate XV). The snout is of medium length, and the face dished. The ears are generally

nearly erect, although in the larger strains and in aged animals they frequently incline forward. They should be well carried. The jowl is rather heavy, and the neck short, usually carrying considerable crest. The shoulder, back and rump are of good width, although the back is probably not quite so broad as that of the Poland-China. The ham is thickly meated, and is generally somewhat trimmer in appearance than that of the Poland-China. The Berkshire generally has good depth of body, and indications of a strong constitution. The bone is of excellent quality in the best specimens, and the animal usually stands well on its feet. The standard color is black, with a white mark on the face, white on each foot, and white on the tip of the tail. Sometimes, some of these white markings are absent, and sometimes white occurs on other parts of the body, such as a white blotch on the jowl, on the shoulder or elsewhere. The standard of excellence prepared by the American Berkshire Association does not disqualify an animal for defective markings, but in selecting breeding-stock, some breeders shun animals too freely marked with white.

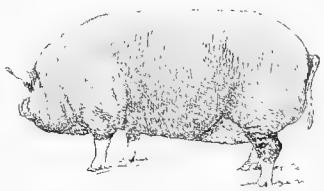


FIG. 85. — Berkshire sow.

505. Types. — The type of the Berkshires is affected by the methods of individual breeders, and, to some extent, by the market demands of the countries in which they are bred. In the United States there was a tendency for some time to breed a fine-boned, somewhat undersized type, emphasizing smoothness and quality rather than size. Fortunately, however, some of the leading American

breeders are maintaining both size and quality, and the future of the breed is no doubt safe in their hands. In Canada, owing to the demands of the market for bacon hogs, and owing to the competition of strictly bacon breeds, the tendency on the part of the best Berkshire breeders has been to select for a lengthy, strong-boned type, which, compared with the American type, looks somewhat leggy and coarse, but which, in reality, is a first-class farmer's hog. A good deal is heard at present about the so-called Large English Berkshire. The Large English Berkshire is no different in breeding from the ordinary Berkshire, but in England, as in any other country, the Berkshire will be found to vary more or less in type, and some importers select the larger, stronger-boned animals for importation to America, and call them Large English Berkshires. As a matter of fact, they may be litter mates of animals of the very finest-boned type.

506. Uses of Berkshire hogs. — The Berkshire is better suited for supplying the market demand for fat hogs than it is for producing bacon hogs. When backs, shoulders and hams are the main requirements, the Berkshire fits in exceptionally well; but for the export bacon trade in what are known as "Wiltshire sides," the Berkshire has scarcely enough length of side, and has too heavy a neck and shoulder, because the neck and shoulder furnish cuts which are low in price and difficult to sell in connection with a "Wiltshire side." When crossed with the Large Yorkshire or Tamworth, an excellent farmer's hog is the result, although it is perhaps a little nearer to the bacon type than to the fat type. Berkshires have made an exceptionally good showing in the market classes at leading American shows, where they come into competition with other breeds.

It is difficult to secure data regarding the relative early maturity of different breeds, but the Berkshires certainly stand well in this respect. They attain reasonably good weights at an early age and fatten readily. It is a matter of dispute whether they are equal to the Poland-China in point of early maturity, some good authorities placing the Poland-China first, while others would place the Chester-White or Duroc-Jersey at the head of the list. As a matter of fact, it is quite probable that among the best representatives of the breeds mentioned, there is not any very marked difference in point of early maturity.

As an economical converter of feed into pork, the Berkshire is probably not excelled, although it would be too much to say that it leads other breeds in this respect. Breed experiments have been conducted at several agricultural experiment stations, but if we study each individual experiment carefully, we will be forced to the conclusion that the ability to make economical use of food is apparently a question of individuality rather than one of breed. With our present knowledge of the problem, we feel safe in stating that the Berkshire will produce pork as cheaply as any other breed.

The flesh of the Berkshire is of excellent quality, and carries a large proportion of lean to fat. Investigations regarding the quality of meat from different breeds generally agree in giving the Berkshire a high place both in quantity of lean and fineness of quality. With more length of side, and less tendency for the fat to run unduly thick over the top of the shoulder and neck, the Berkshire would make a capital " Wiltshire side " of bacon.

Berkshire sows of the more lengthy type are prolific, and generally make good mothers. The extremely fine, short type of sow does not, as a rule, produce such large litters.

The boars are prepotent, and cross well with almost any other breed, as well as being useful for improving common stock.

507. Distribution. — Berkshires are found in every state and territory of the United States, the most important centers being Pennsylvania, Illinois, Missouri, Indiana, Texas, Ohio, Kansas, Iowa, New York, Michigan and Tennessee. During the last two years more Berkshires were sold into Pennsylvania than into any other state. They also are found in every Canadian province, the province of Ontario taking the lead. They are found in practically all parts of the British Isles, in South America, in Hawaii and in some European countries.

508. Organizations and records. — The American Berkshire Association was organized in 1875, and has the distinction of having started the first record of swine in America. The first herd-book was published in 1877, and up to the present forty-seven volumes have been issued, containing the names of nearly 208,000 animals.

Registration of Berkshires in Canada was begun in 1876, and was conducted by the Agriculture and Arts Association until 1891, when the records were taken over by the newly organized Dominion Swine Breeders' Association. The first volume of the Dominion Swine Breeders' Record was published in 1892. This record recorded all breeds of swine represented in Canada. In 1905, the Dominion Swine Records, together with nearly all the live-stock records in Canada, were placed under the direct supervision of the Canadian Department of Agriculture at Ottawa, but are under the control of a "Record Board," comprised of representatives elected by the various breed organizations. This National Live-Stock Record records all breeds of swine in Canada, but the herd-book still keeps the name of Dominion Swine Breeders' Record.

In England, Berkshires are recorded in the British Berkshire Herd-book, controlled by the British Berkshire Society.

Literature. — The Berkshire World is published in the interests of this breed at Springfield, Illinois.

Poland-China Swine. Plate XV. Fig. 86.

By *G. E. Day*

509. Poland-China swine are entirely the product and development of American swine-breeders. They are of the lard-hog type.

510. History. — The Poland-China originated in Butler and Warren counties, Ohio. These two counties are drained by the Great Miami and the Little Miami rivers. The valley of the Miami is a very fertile district, and its name is closely associated with the early history of this breed. The history of the origin of Poland-China swine is not altogether clear, and some points have been the subject of lengthy controversies. From the varying theories and claims put forward, we may accept the following statements as being reasonably accurate. Previous to 1816, the Russia and Byfield breeds were largely used for crossing on the common hogs of the Miami valley. These were both white breeds, possessing more or less merit as feeders. In 1816, the Society of Shakers, of Union Village, Warren county, brought a boar and three sows from Philadelphia. The pigs were represented to the Shakers as being of pure Chinese blood, and they were called Big Chinas. The boar and two of the sows are said to have been pure white, and the other sow was white, with some sandy and black spots. These Big Chinas and

their descendants were extensively crossed on the hogs then in the county, and the resulting type came to be known as the Warren county hog. The Big China was a medium-sized breed, of fine bone and good feeding qualities, and its use on the hogs of Warren county effected a marked improvement. It is also stated that subsequent to the introduction of the Big China, other China hogs of finer and smaller type were brought into the county. In 1835 or 1836, Berkshires were introduced and extensively used, and about 1839 or 1840, the Irish Grazier was imported and used on these pigs of complicated breeding in Warren county. The Irish Grazier was a white breed of considerable merit and did its share toward modifying the Miami valley hogs. It was also said by some persons that a Poland breed was used for crossing on Warren county hogs, while others maintained that no such breed was ever introduced. An extended controversy ensued, which was finally ended by the findings of a committee that was appointed to investigate the origin of the breed, and which reported its findings to the National Swine Breeders' Convention held in Indianapolis in 1872. This committee reported against the theory that a Poland breed had been used, but recommended that the name Poland-China be recognized as the accepted name of the breed. The recommendation was adopted, and since that time the breed, which previously had been known by a great variety of names, has been known as the Poland-China. It is said that since 1845 no outside blood has been infused into this breed.

511. Description. — The Poland-China is a medium-sized hog, and, as commonly bred, is not so large as the large type of Berkshire; but the average Poland-China is well up to the average Berkshire in weight. The face is

slightly dished; the jowl full and heavy; the ears should be fine, firmly attached to the head, and about one-third of the ear should droop. The neck is short, thick and heavily arched on top. The shoulder is heavy, the side rather short, but deep, and the back wide, with a slightly arched top-line. The whole hind-quarter is heavily fleshed, the ham being exceptionally wide and deep. The legs are short, and the bone fine. Some years ago, Poland-Chinas were freely marked with white, but the fashionable color to-day is black, with six white points, namely, white in face, on the feet, and tip of the tail. A limited number of white markings on other parts of the body is not seriously objected to (Plate XV and Fig. 86).



FIG. 85. — Poland-China boar.

512. Types. — As is the case with other breeds, the Poland-China differs more or less in the hands of different breeders. The older type of Poland-China was a larger, more rangy and heavier-boned hog than the Poland-Chinas seen in the show-rings of to-day. Breeders of Poland-Chinas have gone rather to an extreme, on the whole, in the matter of selecting for fineness of bone, and the result, in many cases, is a hog that lacks somewhat in size and in fecundity. These facts have been brought forcibly before breeders during recent years, and any defects of the nature stated will be remedied, no doubt, by thoughtful breeders. Even now, we can see evidences of a change in methods, and there is little doubt that the Poland-China will be bred to retain its high quality without sacrificing its utility.

513. Uses of Poland-China hogs. — The Poland-China has been developed especially to meet the market demand for a fat or lard hog. Its heavy shoulder, wide back and heavily developed hams render it an exceptionally good yielder from the packer's standpoint.

The quality of the meat produced by the Poland-China has frequently been criticised because of its large proportion of fat to lean. The development of a tendency to produce lean along with fat has been largely overlooked in bringing this breed to its present stage of perfection from a feeder's standpoint, but it appears to meet the demands of the American packer, and he is willing to pay top market price for it.

In early maturity, that is, in ability to produce a finished fat carcass for the packer at an early age, the Poland-China is unexcelled. It has been bred for early maturity for generations, and has attained an enviable reputation in this connection.

As a feeder, the Poland-China is a favorite with corn-belt farmers. The breed has been developed on corn-feeding, and seems to thrive on an exclusive corn ration better than many other breeds. In a colder climate, and on a mixed ration, the Poland-China might not show to so good advantage as some other breeds, but for the purpose of turning corn into pork, it is difficult to beat. The Poland-China has also demonstrated its usefulness as a grass hog, making good gains on pasture with a light grain ration. Experiments with breeds of swine have resulted differently at different stations, and it would seem that economy of production is more a question of individuality than of breed. Their exceptional tendency to fatten renders animals of this breed especially valuable for crossing purposes, and the Poland-China is highly esteemed for

crossing on other breeds, as well as on common, or grade stock. A cross between the Large Yorkshire and the Poland-China has been found to give an excellent hog, both from a farmer's and a packer's standpoint. For crossing with the Berkshire, Duroc-Jersey and Chester-White, the breed is very highly esteemed, and the cross-breds are generally regarded as superior to the pure-breds for feeding purposes.

The most serious criticism directed against the Poland-China is on the score of fecundity. In any breed in which so much attention has been paid to the development of fine bone and a very marked tendency to fatten, it is only natural to expect that there would be some loss of fecundity, and statistics appear to indicate that the Poland-China is no exception to the rule. This criticism applies especially to the very fine-boned types.

514. Distribution. — The Poland-China is widely distributed over the United States. The principal states in which the breed is found, according to the Secretary of the American Poland-China Record Association, are Iowa, Illinois, Texas, Missouri, Kansas, Nebraska, Indiana, Ohio, Minnesota, South Dakota, Wisconsin, Oklahoma and Michigan, but there are few states where Poland-Chinas are not to be found.

In Canada, the breed has not obtained a very strong foothold. Outside of the United States and Canada the breed is but little known.

515. Organizations and records. — Organizations in the interests of Poland-Chinas are numerous. The largest organization is the American Poland-China Record Association, which was organized in 1878 and published its first herd-book in 1879, and has published sixty-four volumes to date, containing the names of 390,000 animals.

The Ohio Poland-China Record was organized in 1877, and up to 1906 had published twenty-seven volumes. The Central Poland-China Association was organized in 1880, and published twenty-six volumes of its Record up to 1906. In 1906, the Ohio and Central Associations amalgamated under the name of the National Poland-China Record Company, and since amalgamation thirty-six volumes have been published, which begin where the Ohio herd-books left off. The Ohio Association recorded 103,000 head, the Central Association 48,000 head, and since amalgamation, 150,000 head have been recorded in the National. The Standard Poland-China Record Association was organized in 1887, and has published thirty-five volumes since that time with over 256,000 registrations. The Northwestern Poland-China Swine Association was organized in 1881. The Southwestern Poland-China Record Association was organized in 1896. These associations in the main are thrifty and influential, as indicated by the large number of registrations; but the best interests of the breed demand greater unity of effort and of ideals.

In Canada, Poland-Chinas are recorded in the Dominion Swine Breeders' Record.

Duroc-Jersey Swine. Figs. 87, 88.

By *G. E. Day*

516. The Duroc-Jersey is an American breed of swine, and is of the fat- or lard-hog type. It has earned an enviable reputation with corn-belt farmers for early maturity, rapid fattening and prolificacy.

517. History. — Red pigs have existed in the United States for a great many years, and there seems to be no

satisfactory account of their origin. It is said that slave traders brought in a red breed of hogs from western Africa, known as the Guinea breed. It is also stated that Henry Clay imported Spanish red pigs in 1837, and that Daniel Webster brought red pigs from Portugal in 1852. It is further stated that the Berkshire, which, in its early days was freely marked with red or sandy hair, is responsible for some of the red pigs. Whatever breeds, or mixture of breeds, were responsible, it is certain that a large breed of red hogs attained to considerable prominence in New Jersey, and was eventually given the name of Jersey-Red. The Jersey-Red had large lop ears, and good length of body. It was rather long in the leg, and coarse in bone and hair. It was valued because of its size, strong constitution and rapid growth.

The Duroc originated in Saratoga county, New York, and, to put it briefly, resulted from crossing a red boar on the common sows of the district. It is uncertain whether the boar came merely from another part of New York state, or from England. It is said that the boar was named "Duroc" after the famous stallion, and hence the name of the breed. The Duroc also had lopped ears, but it was a much finer type of pig than the Jersey-Red.

In the course of time, the breeders of Jersey-Reds and Durocs came together, and the two breeds were blended into one, under the name of Duroc-Jersey. The amalgamation took place in 1883.

518. Description. — The Duroc-Jersey is similar in size to the Chester-White and the Poland-China. Some specimens are of very large size, but the tendency of modern breeding is toward a medium size, with rather fine bone. It is possible that breeders are going too far in reducing

the size of the animal and the weight of its bone, and the larger, heavier-boned hog will always find an important place in this breed, as, indeed, in all others. The snout is of medium length; the face slightly dished; the ear drooped, much the same as that of the Poland-China; the jowl heavy; the body wide and deep, set on short legs of medium to fine bone; the ham heavily fleshed, and the body generally noted for thickness rather than for length. Cherry-red is the popular color, but yellowish red and chestnut are frequently seen. A few black spots on belly and legs do not disqualify, but are objectionable. Black markings on any other parts of the body are very serious objections (Figs. 87, 88).

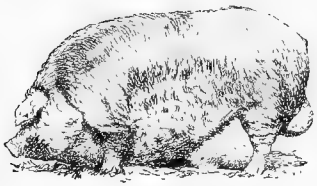


FIG. 87. — Duroc-Jersey boar.

519. Types. — Like other breeds, Duroc-Jerseys present variations in type. On the whole, breeders have been striving for a fine-boned, smooth type of hog of medium size. It is asserted by some persons that this refining process has been carried too far, and breeders are to be found who are producing hogs of more bone and more size. These larger, heavier-boned hogs are attracting considerable attention among Duroc-Jersey breeders, and it would seem that they would yet perform an important work for the breed.

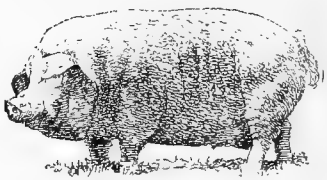


FIG. 88. — Duroc-Jersey sow.

520. Uses of Duroc-Jersey hogs. — The Duroc-Jersey is essentially a producer of fat or lard hogs, and it seems to

be meeting the demands of the American packer in a satisfactory manner. As a bacon hog, it is not a success.

It is an early maturing hog, and makes economical gains, as has been demonstrated by experiments. It must be repeated again, however, that individuality is much more important than breed in regard to economy of production. It is safe to say that the Duroc-Jersey will make as cheap gains as any other breed. The Duroc-Jersey has considerable reputation as a grazer, and also takes kindly to corn-feeding. It has an advantage over most white breeds, in that its skin does not blister with the sun, and it is therefore gaining favor in the South. The meat of the Duroc-Jersey is similar to that of the Chester-White and the Poland-China when fed under the same conditions. If fed a mixed ration, it is capable of producing meat with a good proportion of lean.

The Duroc-Jersey, for a fat hog, is prolific, although it can hardly be said to equal the Large Yorkshire and the Tamworth in this respect.

The Duroc-Jersey crosses well with other breeds, and a cross with the Poland-China or the Berkshire is very popular. The boars do excellent work as improvers of common stock.

521. Distribution. — The Duroc-Jersey is found in a great many states, the most important of which are Iowa, Illinois, Nebraska, Kansas, Missouri, Indiana, Ohio, Minnesota, Oklahoma, Texas, Kentucky, Tennessee, Michigan and Wisconsin. The breed is also largely represented in many other states. The breed has been introduced into Canada, but has not made much progress as yet in that country although there are some good herds, especially in the western provinces.

522. Organizations and records. — The American

Duroc-Jersey Swine Breeders' Association was organized in 1883, but it was not incorporated until 1888. The first herd-book was published in 1885, and forty-one volumes have been issued since, containing 108,000 registrations. The National Duroc-Jersey Record Association was organized in 1891, and published its first herd-book in 1893. It has published forty-eight volumes to date, containing 314,000 registrations. In Canada, Duroc-Jerseys are recorded in the Dominion Swine Breeders' Record.

Literature. — "The Duroc Bulletin" is a semi-monthly paper published at Peoria, Illinois, in the interests of Duroc-Jersey swine.

Chester-White Swine. Fig. 89.

By *G. E. Day*

523. The Chester-White is an American breed of swine of the fat- or lard-hog type, but possessing good bacon qualities. It ranks with the three other great lard breeds.

524. History. — Most authorities on this breed recognize three strains of Chester-White swine, the origin of which may be briefly summed as follows:

(1) *The original Chester-White* founded in Chester county, Pennsylvania, whence the name. Large, white pigs were common in Chester county many years ago. They were taken there by the earliest settlers, although just where these original pigs came from is not altogether clear. About the year 1818, Captain James Jeffries imported from England a pair of white pigs, which are spoken of as Bedfordshire pigs, and as Cumberland pigs. Captain Jeffries used the boar on the native white pigs of the dis-

trict with good results. Later, it is stated, white Chinese pigs were imported to Chester county and crossed on the native pigs. Eventually the different strains of blood were combined, and from this combination came the original Chester-White breed.

(2) *Todd's Improved Chester-White* has a somewhat complicated history. About 1827, Norfolk Thin Rind pigs were imported from England to Connecticut. Two brothers, named Todd, bought a boar of this breed, and a sow of what was called the Grass breed, and took them to Ohio, where they were bred together with considerable success. Later, a Joseph Haskins brought to Ohio a boar of the Byfield breed, and a sow similar to the original Todd sow. The Todd and Haskins pigs were freely bred together. Isaac Todd also used other boars in his herd, one of which was said to have been of the large Grass breed, and another was called a Normandy boar; little is known of the breeding of either. Both of these boars were white in color. In 1865, Isaac Todd introduced Chester-White blood. His son, S. H. Todd, made further use of the Chester-White, and by careful breeding and selection evolved what is known as Todd's Improved Chester-White.

(3) *The Ohio Improved Chester-White* is the product of the efforts of L. B. Silver, of Ohio, who, in 1865, began breeding Chester-Whites, and who aimed to produce a superior type through selection.

525. Description. — Some years ago, the Chester-White was rated as the largest breed in the United States, but modern methods of breeding have decreased the size and produced an animal of more quality than the original type. As bred at present, the Chester-White may be ranked as of medium size, or about the same as the Poland-China.

The face is straight, or very slightly dished, and the snout is generally somewhat longer than that of the Poland-China. The ear droops, somewhat like that of the Poland-China, although it is generally heavier, and the droop, or break, is usually farther from the tip. It is common for the ear to be somewhat loosely attached to the head. In general conformation, the Chester-White is similar to the Poland-China, although the latter generally excels in depth and fullness of ham.



FIG. 89. — Chester-White boar.

The color is white, no black hair being admissible, although it is common for black or bluish spots to occur on the skin. In many specimens, the hair has a decided tendency to be wavy, and even curly (Fig. 89).

526. Types. — The Chester-White is capable of showing extreme variations of type in the hands of different breeders. In American show-rings, the short-legged, fine-boned, deep, thick, smooth type is generally preferred by the judges, who seem willing to sacrifice considerable size in order to get smoothness and quality. Larger, heavier-boned types occasionally appear, but are generally discouraged by the judges. In Canada, greater importance is attached to length, and some very lengthy, heavy-boned Chester-Whites are frequently seen in Canadian show-rings. At the 1907 Provincial Winter Fair, at Guelph, Ontario, a pair of Chester-White carcasses were exhibited in the bacon class in competition with Yorkshires, Tamworths and Berkshires, and though they were not ideal bacon carcasses by any means, they were good enough to win sixth prize; and a number of Yorkshire and Tam-

worth carcasses, together with all the Berkshire carcasses, were ranked below them. Any person who has seen the unequaled exhibit of bacon carcasses at Guelph, will understand that these hogs must have been about as far away in type from the American prize-winning Chester-White as it is possible to get. This is an extreme case, but it illustrates the possibilities of the breed under different systems of selection and feeding. As to the different strains mentioned in the history of the breed, they have now all assumed very much the same type.

527. Uses of Chester-White hogs. — Although the Chester-White can be made to approach the bacon type through selection and feeding, as mentioned in the preceding paragraph, it can never be made an ideal bacon hog, and it seems like a waste of energy to attempt to make it a bacon breed when first-class bacon breeds are already available. The Chester-White is especially adapted to the fat-hog trade, and will no doubt continue as such. Crosses of the Chester-White with the Large Yorkshire and Tamworth have given very satisfactory results in Canada, and it is only through crossing that Chester-White blood can be used successfully in the bacon trade. For the requirements of the American packer, the Chester-White is eminently well suited.

The quality of meat produced by the Chester-White is good, but is somewhat lacking in lean. It is generally conceded that the Yorkshire, Tamworth and Berkshire produce more lean in proportion to fat.

In early maturity, the Chester-White compares favorably with other breeds, and it is an economical producer of meat. In feeding trials it has given a good account of itself, but, as previously stated, no breed can claim superiority over other breeds in this respect, so far as we can

judge from experimental work and from practical experience. The Chester-White is also a good grazer, and in this feature probably excels the Yorkshire and the Tamworth, which are better adapted to pen feeding.

It is said that the Chester-White, as a breed, is somewhat more prolific than the Poland-China and the fine type of Berkshire. The assertion is supported by the findings of A. W. Bitting, who investigated the matter in 1897.

For crossing purposes, the Chester-White is highly esteemed, a cross with the Poland-China being regarded with especial favor by feeders. The grade Chester-White sow is a very useful farmer's pig, and pure-bred boars are very effective in improving common stock.

528. Distribution. — The Chester-White is largely distributed over the United States. It is very popular in the eastern states, and is strongly represented in Ohio, Indiana, Illinois, Iowa, Michigan, Wisconsin, Pennsylvania and other states. It has also spread to the South, to some extent at least, and seems to be giving satisfaction. For some reason it has gained a much stronger foothold in Canada than the Poland-China, probably because it seems more easily bred to a lengthy type than the Poland-China.

529. Organizations and records. — The American Chester-White Record Association took over the business of the Chester-White Record Association in 1894. The Chester-White Record Association was organized in 1884, to support Todd's Improved Chester-White Swine, and issued four volumes previous to 1894, when it was changed to the American Chester-White Record. The Ohio Improved Chester-White Swine Breeders' Association was organized in 1897. For registration in the herd-book of

this Association, pedigrees must trace to the herd of L. B. Silver, who has already been referred to as the originator of the Ohio Improved Chester-White, or the O. I. C. strain, as it is generally called. The Standard Chester-White Record Association was organized in 1890, and the National Chester-White Record Association in 1880. On June 15, 1913, the Standard Chester-White Record Association and the American Chester-White Record Association consolidated into the Chester-White Swine Record Association. On March 11, 1915, the National O. I. C. Chester-White Record Association also joined, making a total membership of 2500. The aggregate number of animals recorded in the three associations that now form the Chester-White Swine Record Association is 90,000. In addition there are the Ohio Improved or O. I. C. Swine Breeders' Association with 50,000 animals recorded and a membership of 900 and the National Chester-White Record Association with 25,000 registrations and 300 members.

In Canada, Chester-Whites are recorded in the Dominion Swine Breeders' Record.

Literature. — The American Chester-White Record Association has undertaken the publication of an annual called "The Annual Chester-White Bulletin," which contains some information regarding the breed, names of breeders and advertisements. "The Chester-White Hog Breeders' Directory," by Frank F. Moore, Secretary of the Standard Chester-White Record Association, contains considerable information, of interest to Chester-White breeders.

Hampshire or Thin Rind Swine. Plate XV.

By *G. E. Day*

530. The Hampshire or Thin Rind is said to be a bacon hog, but it may be placed more correctly between the bacon and fat-hog types. Its show-ring winnings in this country have been in fat classes.

531. History. — The original American name of this breed is Thin Rind. In 1904, the organization which looks after the interests of the breed changed the name to Hampshire, which is now the official name of the breed. It is the latest addition to the recognized pure breeds of swine in the United States.

According to H. F. Work, the Hampshire traces to pigs brought to Massachusetts from Hampshire, England, about 1820 or 1825. It is also stated that descendants of this importation were taken to Kentucky about 1835. Be this as it may, the breed has been known in Kentucky for many years. Various theories regarding its origin have been advanced, but it seems impossible to secure definite and reliable information regarding the origin of the breed.

532. Description. — The Hampshire is only medium in size, and, if there is any difference, it will scarcely equal the Chester-White and the Duroc-Jersey in weight. The face is straight, and the ear is inclined forward but does not droop like that of the Poland-China. The jowl is lighter than that of the general run of fat hogs, as is also the shoulder and the ham. The back is of medium width, and the side has fair length but is not so deep as that of a typical fat hog. The legs are of medium length, and the bone is of good quality. It may be described as

between the bacon and the fat type. H. F. Work, at one time Secretary of the American Hampshire Association, describes the color as follows: "In color, they are either listed or blacks, the most fashionable colors consisting of black extremities with a white belt four to twelve inches wide, encircling the body and including the fore-legs, which should also be white." The term "listed" means that the white belt is present. Work further states that there are some breeders who try to run their herds all black, and asserts that breeders should not be too particular regarding color, except in cases when white spots occur.

533. Types. — Hampshires do not vary extremely in type, if we may judge by exhibits made at the leading shows, and the breed has not yet attained sufficient prominence to admit of an intelligent study of this phase of the question.

534. Uses of Hampshire hogs. — It is claimed for the Hampshire that it is a bacon hog. In regard to this claim, we must bear in mind that what the American packer calls a bacon hog is a very different animal from the one required to make a "Wiltshire side" for export to England. It is animals suitable for making "Wiltshire sides" that have given rise to the market term, "bacon hog," and if judged from this standpoint, the Hampshire would fall far short of requirements. It is altogether too short in the side, too thick in the shoulder, and too heavy in the neck to make a number one "Wiltshire side," but as a light-weight hog for supplying bacon for home consumption, the Hampshire answers the purpose very satisfactorily.

In early maturity and feeding qualities, the Hampshire seems to be giving good satisfaction to those who are handling it, and it is highly esteemed as a grazer. It is

an active, hardy breed, and there is no apparent reason why it should not give as good an account of the food it consumes as any other breed.

In quality of flesh, the Hampshire has an enviable reputation. It has made an excellent record in the dressed carcass competitions at the International Live Stock Exposition at Chicago, and the packers appear to regard it with high approval. Its strong point is the large proportion of lean.

The Hampshire ranks high in regard to fecundity, and appears to be one of the most prolific of American breeds so far as we are able to investigate the matter.

The value of the Hampshire for cross-breeding is not well known, but it seems reasonable to suppose that it should cross well with the fat types of hogs.

The belted color arrangement of the Hampshire is not invariable, both belted and black pigs appearing in the same litter. Therefore too strict adherence to this color characteristic may actually retard practical improvement in the breed.

535. Distribution. — According to the secretary of the Hampshire Association, the breed is to be found in a large number of states, but the numbers in any one state are not large, comparatively speaking. Kentucky, Illinois and Indiana are probably the most important centers, but the breed has been making rapid progress of late. A few importations have been made into Canada, but the breed is not as yet largely represented.

536. Organizations and records. — The American Hampshire Swine Record Association was organized in 1893, and published its first herd-book in 1906. Ten volumes of the herd-book have been published to date, with a total of 93,000 registrations.

Cheshire Swine. Fig. 90.

By *G. E. Day*

537. Cheshire swine are a breed of American origin, and may be classed under the fat-hog type. They have not attained much popularity outside of a restricted area in New York state.

538. History. — The Cheshire originated in Jefferson county, New York, and dates from about 1855. J. H. Sanders, of Chicago, who bred Cheshires for some years, stated in a letter to F D. Coburn, that he considered the Cheshire to be "simply a derivative of the Yorkshire." The Yorkshire was brought into Jefferson county and used on the white pigs of the district. Early in the sixties hogs of this breed were shown at the agricultural fairs, where they attained some popularity. The Swine Breeders' convention, in a meeting at Indianapolis, Indiana, in 1872, adopted the name Cheshire for the breed. It is thought that Suffolk blood was also used in the combination, which eventually resulted in the Cheshire.

539. Description. — The Cheshire is about medium in size, but some specimens attain heavy weights. It is said that the Cheshire weighs well for its appearance, and is a heavier breed than is generally supposed. Although the body is not noted for depth, it generally has good length, and the shoulders and hams are usually well developed. The face is slightly dished, and the ear rather small and erect. The bone is fine and

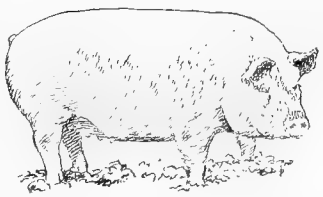


Fig. 90. — Cheshire barrow.

of fair quality. The color of the breed is white. Black spots frequently occur on the skin, which, though objectionable, do not disqualify (Fig. 90).

540. Types. — In his letter to F. D. Coburn, previously referred to, J. H. Sanders stated that in his herd he had produced "all the different types of Yorkshire, from the Large York down to the Lancashire Short-Face." The type he succeeded in producing "was almost identical, in size, form and quality, with the most approved medium Berkshire." As bred at present, the type probably does not vary any more than that of other breeds.

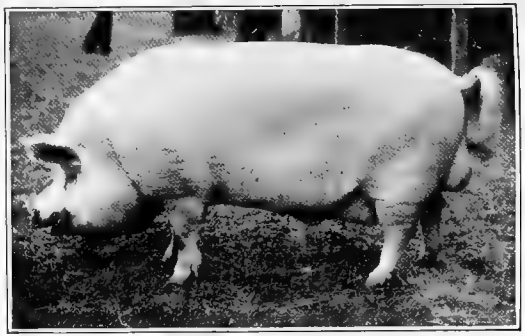
541. Uses of Cheshire hogs. — The Cheshire, as generally seen, belongs more to the fat hog than to the bacon class, although it should not be difficult to develop it into a fairly good bacon breed. It appears to be a good feeder, dresses out well, and its meat is admitted to be of excellent quality. The sows are fairly prolific and breed very readily, and the boars appear to be prepotent, although but little is known regarding their value for crossing purposes.

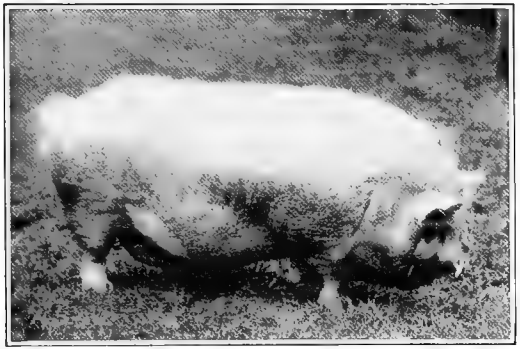
542. Distribution. — The Cheshire is found mainly in New York state, the Animal Husbandry Department of the New York State College of Agriculture being one of the most ardent advocates of this breed. A few scattered herds are kept in other states, more particularly in certain of the New England and middle states. The breed has made but little progress, and does not seem likely ever to attain prominence. No doubt a few have been taken into Canada, but none have ever been recorded in the Canadian record.

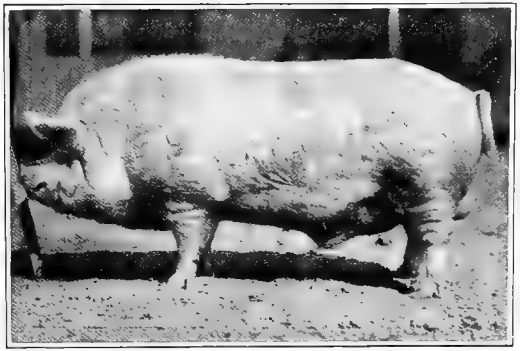
543. Organizations and records. — The Cheshire Swine Breeders' Association was organized in 1884, and has published six volumes of its herd-book to date, registering over 5800 hogs. The first volume appeared in 1889.

PLATE XVI. — Breed Types of Swine.









MIDDLE WHITE YORKSHIRE SOW above.
SMALL WHITE SOW below.

LARGE IMPROVED YORKSHIRE BOAR above.
VICTORIA BOAR below.

Victoria Swine. Plate XVI. Fig. 91.

By *G. E. Day*

544. The Victoria breed of swine originated in America, but unlike the Poland-China and the Duroc-Jersey, the great American breeds, it has not gained much popularity. It is of the fat-hog type.

545. History. — At one time there were two breeds of Victoria swine, but only one breed and type is now recognized. The breed that has secured the ascendancy was originated by George F. Davis, Dyer, Indiana, and was formed by combining the blood of the Poland-China, Berkshire, Chester-White and Suffolk, accompanied by careful selection to a type. The origin of the breed dates to about 1870.

The other breed was established about 1850 by Colonel F. D. Curtis, of New York state, who is said to have used Irish Grazier, Byfield, Yorkshire and Suffolk blood. This breed seems to have disappeared as a recognized pure breed.

546. Description. — The Victoria ranks with the medium-sized breeds, being similar to the Berkshire in size. The snout is rather short, the face dished, and the ear, which is of only medium size, is firmly attached to the head and erect. The body is broad and deep, and the hams and shoulders reasonably well developed. The color is white, with occasional dark spots on the skin (Fig. 91).

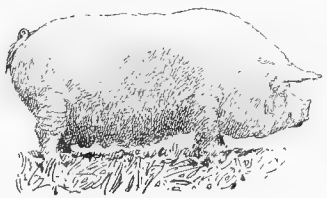


Fig. 91. — Victoria sow.

547. Uses of Victoria hogs. — The Victoria belongs to the fat class. We have little information regarding its early maturity and feeding qualities, but from the fact that it does not increase rapidly in popularity, it would seem that the public does not recognize any outstanding merit or advantage over other breeds. In quality of meat, it appears quite equal to other breeds, and it has a good reputation for being prolific.

Its value for cross-breeding has not been well demonstrated.

548. Distribution. — According to Plumb, the Victoria is found mainly in Indiana, Ohio and Illinois, with scattered herds in a few other states. A very few Victorias have found their way into Canada, but the breed is now nearly extinct in that country. For some reason the breed does not make much progress.

549. Organizations and records. — The Victoria Swine Breeders' Association was organized in 1886, and the Victoria Swine Record is published by this association. In Canada, only nine animals of this breed have been recorded in the Dominion Swine Breeders' Record.

Essex Swine. Fig. 92.

By *G. E. Day*

550. The Essex is a small, easily fattened pig of the American or fat-hog type. It originated in England.

551. History. — The Essex pig takes its name from the county of Essex in England. The original Essex pig was an extremely undesirable feeder's type, being coarse in bone, flat in the rib and long in the leg. It was hard to fatten and slow to mature. In color it was generally

black and white. In 1830, Lord Western imported black Neapolitan pigs from Italy, and crossed them with the Essex pigs. In the course of time he evolved a type that was a wonderful improvement on the old Essex, and it is said that he used other blood than that of the Neapolitan. It is stated that Lord Western inbred too closely, and that his pigs became weak in constitution and lacking in fecundity.

Soon after Lord Western began his work of improvement, one of his tenants, named Fisher Hobbes, took up the breeding of Essex-Neapolitan pigs, and in his hands the breed was much improved, increasing in size and improving in constitution and breeding qualities. The Hobbes strain was called Improved Essex, and gained in popularity very rapidly.

It is said that some of the old Essex pigs existed in the United States as early as 1820. When the Improved Essex had established its reputation, importations to America became common, and large numbers were brought out, but of late years very few importations have been made.

552. Description. — The Essex must be classed with the small breeds, being, as a breed, decidedly smaller than the Berkshire or the Poland-China. It is a short, thick, deep, chunky type of pig, with short, fine-boned legs. The snout is short, the face dished, the forehead broad, and the ears small, fine and erect, but inclined to droop slightly with age. The neck is very short, and the shoulders and hams largely developed. Altogether, it is a very smooth, compact type of hog. The color is all black, no white being admissible (Fig. 92).

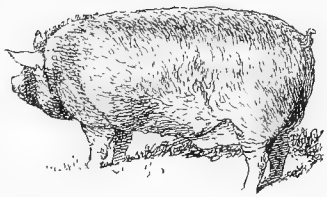


FIG. 92. — Essex boar.

553. Types. — To meet the modern demand, many breeders of Essex swine are striving to develop a type with more size, heavier bone and greater length. That they are meeting with some degree of success is evidenced by the types of Essex placed on exhibition at some of the fairs during the past few years. This recent type gives more promise of present-day utility than the type we have been accustomed to see.

554. Uses of Essex hogs. — The Essex belongs to the extremely quick maturing, easily fattened type. Its lack of size prevents its becoming popular with the general farmer, and it is more suited to the requirements of the villager, who keeps one or two pigs, and who wishes to use the minimum amount of food. He will not have so many pounds of pork, but he will have a finished hog with a small outlay. The breed is regarded as being a cheap producer of meat, and no doubt such is the case; but it would not be safe to assume that it will always produce meat at a lower cost than larger breeds. The meat from the Essex is fine-grained, but excessively fat.

The sows are not regarded as prolific, but a great deal depends on how they are fed and managed.

For cross-breeding, the Essex is suitable for crossing with unduly coarse types. In the past, it played an important part in improving other breeds, but as the breeds of swine have been brought to a finer type, the field of the Essex has become narrowed, until the breed is now more famous for what it has accomplished than for what it is capable of doing at present. About the only important opening for it in the United States at present, is the conquest of the "Razorback" of the South, and on this mission it has already set forth.

555. Distribution. — The Essex has spread from its

native county into several other English counties. It has been exported to several European countries, to Australia, Canada and the United States. It would be difficult to select any state as an important center for this breed, but it occurs, scattered here and there in small lots, in a large number of states. It has become very popular in the South.

The Essex has nearly disappeared from Canada. None of the Canadian exhibitions makes a separate class for this breed.

556. Organizations and records. — The American Essex Association was organized in 1887, but its membership is not large. It has published two volumes of its record, which contain some 1500 names. In Canada, Essex swine are recorded in the Dominion Swine Breeders' Record, but only 286 animals have been recorded.

Suffolk Swine. Fig. 93.

By *G. E. Day*

557. The Suffolk is an English breed of swine, closely identified with the Small Yorkshire, and of little importance in America. It may be classed with the fat- or lard-hog types. It is best adapted to intensive conditions, where land for grazing is scarce and soiling food is used in addition to pasture.

558. History. — The Suffolk is undoubtedly of the same origin as the Small Yorkshire, and is an offshoot of the Small White breed in England. There is no such breed as a White Suffolk recognized in England, but the name Suffolk was sometimes applied locally to the Small Black breed, of which the Essex is a representative.

The breed is said to have been brought to the United States in 1855, but it has never made much progress, and seems to be losing ground steadily.

559. Description. — At the National Swine Breeders' Convention at Indianapolis, Indiana, in 1872, the following description of the Suffolk was approved: "Head small, very short; cheeks prominent and full; face dished; snout small and very short; jowl fine; ears short, small, thin, upright, soft and silky; neck very short and thick, the head appearing almost as if set on front of shoulders, no arching of crest; chest wide and deep; elbows standing out; brisket wide but not deep; shoulders thick, rather upright, rounding outward from top to elbow; crops wide and full, long ribs, well arched out from back, good length between shoulders and hams; flanks well filled out and coming well down at ham; back broad, level, straight from crest to tail, not falling off or down at the tail; hams wide and full, well rounded out, twist very wide and full all the way down; legs small and very short, standing wide apart — in sows, just keeping belly from the ground; bone fine, feet small, hoofs rather spreading; tail small, long and tapering; skin thin, of a pinkish shade, free from color; hair fine and silky, not too thick; color of hair, pale yellowish white, perfectly free from any spots or other color; size, small to medium." In size, the Suffolk is probably slightly larger than the Small Yorkshire, but it is practically the same breed (Fig. 93).

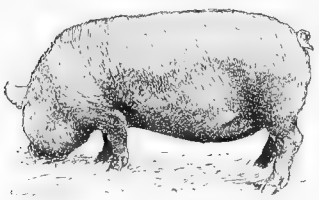


FIG. 93. — Suffolk sow.

560. Uses of Suffolk hogs. — What has been said re-

garding Small Yorkshires under this heading applies here, as the breeds are essentially the same.

561. Distribution. — The so-called Suffolk pig is confined to the United States and Canada, although it has practically disappeared from the latter country. In the United States it is found mainly in the Mississippi valley, but herds are not at all numerous.

562. Organizations and records. — The American Suffolk Association was organized many years ago, but no herd-book has yet been published. In Canada, Suffolks are recorded in the Dominion Swine Breeders' Record, only 850 animals having been recorded.

Small Yorkshire or Small White Swine. Plate XVI. Figs. 94, 95.

By *G. E. Day*

563. The Small Yorkshire is an English breed of pigs, and may be said to be of the fat-hog type. It is of relative unimportance in America.

564. History. — The Small Yorkshire comes from England, where it goes by the name of "Small White," the name "Small Yorkshire" being of American origin. The breed is thought to be of Chinese origin, modified, of course, by the methods of the English breeders. Various types or strains of Small Whites have been bred in England, but at present they are not regarded as a distinct breed.

The Small Yorkshire was brought to the United States, according to Curtis, in 1860, and numerous importations were made between that time and 1878.

565. Description. — The Small Yorkshire may be considered the smallest breed of swine kept in the United

States. It has a very short, turned-up snout, wide face, small, erect ears, heavy jowl, and a very short, heavy neck. The body is short, thick, deep and smooth, and the legs are very short and fine in the bone. The color is white and the hair is abundant, but fine (Figs. 94, 95).



FIG. 94. — Small Yorkshire boar.

566. Uses of Small Yorkshire hogs. — It is somewhat difficult to give any very important use for Small Yorkshires in America. The breed matures very early, and fattens easily, but produces excessively fat meat. It is probably most suitable for the cottager who wants a pig that can be matured with a small amount of feed.

There is no American breed that requires crossing with a breed like the Small Yorkshire, unless it is the "Razorback," and the Essex seems to be rather better adapted to this purpose, as it will stand the hot sun of the South better than a white pig. Any advantage from crossing with ordinary breeds would accrue to the Small Yorkshire, rather than to the other breed.

The Small Yorkshire is not noted for fecundity, and it would seem as though the breed were destined gradually to disappear, unless some unforeseen conditions arise which call for the services of a pig of this kind.

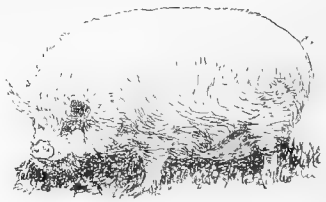


FIG. 95. — Small Yorkshire sow.

567. Distribution. — Small Whites still are found in many parts of England, although not recognized as a pure breed. In the United States, under the name of Small

Yorkshire, small herds are to be found, mainly in the East. The breed no longer attracts much attention.

568. Organizations and records. — The American Small Yorkshire Club was organized in 1878, and has recorded some 1500 pigs in its herd-book. The American Yorkshire Club also records Small Yorkshires, the Small Yorkshires being recorded in what is called Class A and the Large Yorkshires in Class B. No small Yorkshires have been recorded under this name in Canada.

CHAPTER XVII

THE BACON BREEDS OF SWINE

Since side meat is the most important yield of the bacon hog, length instead of breadth is of primary consideration. Both bacon breeds are characterized by extreme length and all that is correlated with it — longer legs, less width throughout, trimmer jowl and under line, lighter shoulders and tapering hind-quarters or gammons, devoid of any fullness.

Large Yorkshire or Large White Swine. Plate XVI. Figs. 96, 97.

By *G. E. Day*

569. The Large Yorkshire is an English breed of swine. It possesses very superior bacon qualities, and stands pre-eminent among the bacon-hog types.

570. History in England. — The large Yorkshire undoubtedly descended from a race of large, coarse-boned, leggy, white hogs, that were common in Yorkshire and adjacent counties for so long a time that we have no definite knowledge of their origin. These coarse white hogs possessed the merit of size, and hence it was possible to improve them by crossing with finer breeds, and still retain plenty of size in the improved type. It is only within the past sixty or seventy years that any marked improvement was effected in the Large White hogs of

Yorkshire. According to Sidney, the first important step was the crossing of the Yorkshire with the white Leicester, a large breed, but finer in bone, and more easily fattened than the original Yorkshire. Perhaps the most important improvement was effected by crossing with the Small Whites, or, as they are now called in America, the Small Yorkshires. These small, fine-boned, easily fattened hogs produced a very marked improvement in the old Yorkshire, which has been still further improved and brought up to its present high standard of excellence by judicious selection in the hands of skillful breeders.

571. History in America. — Large White hogs have been brought to the United States at different times during the past century, but the improved type of Large Yorkshires can scarcely be said to have attained a standing in the United States until 1892. Among the first to import them into Canada were some of the packing houses, who brought them into the country for the purpose of improving the bacon qualities of Canadian hogs. During the past twenty or twenty-five years, the breed has made wonderful progress in Canada, and has more animals recorded in the Canadian record than any other breed.

572. Description. — The Large Yorkshire is one of the largest breeds of swine. The snout is of medium length, and should possess little or no dish, although there is a moderate dish in the face. The jowl is of good width and muscular, but it should not be flabby, nor heavily loaded with fat. The ears are rather large, and sometimes inclined forward, especially in old animals, but they should be firmly attached to the head, should not be coarse, and should be fringed with fine hair. The shoulder and back are only of medium width, the side is long, and the ham carries very little surface fat, making it lighter than the

ham of the fat or lard type of hog. The flesh of the ham should be carried well round the inside of the thigh, and the ham generally shows a tapering appearance toward the hock. The bone is fairly heavy, but should be clean and flinty in appearance. The leg is longer than the leg of the fat hog. The color is white. Black hair on any part should disqualify. Black or blue spots on the skin do not disqualify, but are objected to, and the aim of breeders is to reduce these spots to a minimum. In the description of the snout of the Large Yorkshire, the standard of excellence prepared by the American Yorkshire Club falls short of the ideal of the best breeders of the present day. The short, turned-up snout is no longer popular, although it is very frequently seen (Figs. 96, 97).

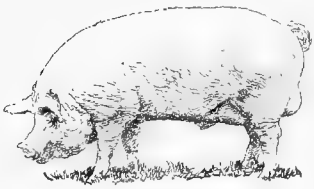


FIG. 96. — Large Yorkshire boar.

573. Types. — Large Yorkshires vary more or less in type, and it requires skill in selection to keep them true to the best type. Some years ago, it was common to find Large Yorkshires with very short, turned-up snouts. This style of snout is generally associated with a rather heavy jowl, neck and shoulder, which, from a bacon standpoint, are very objectionable. Another type, which is frequently seen, has a long, scrawny neck, narrow chest and long coarse-boned legs. This type is generally very long in the side and smooth in the shoulder, both very desirable features from a bacon curer's standpoint; but



FIG. 97. — Large Yorkshire sow.

it has too much bone and too coarse a skin, and lacks in quantity and quality of flesh. It is also a somewhat slow feeder, and is therefore objectionable from a farmer's standpoint. The most desirable type has sufficient length of side to make a good packer's hog, and has constitution and quality to such a marked degree that it is unexcelled from a feeder's standpoint.

574. Uses of Large Yorkshire hogs. — As previously intimated, the Large Yorkshire is especially valued for bacon-production, where a long side abounding in lean meat, and a light shoulder and neck are especially desirable. The large size and strong bone of this breed make it valuable for crossing on breeds that have become unduly fine in the bone, and lack size. It crosses remarkably well with the Berkshire, Chester-White and Poland-China, as well as other fat breeds, increasing the size and the proportion of lean meat without impairing the feeding qualities.

The Large Yorkshire is frequently spoken of as being "slower maturing" than the fat types of hogs, but this is not a fair way of stating the case. From the bacon curer's standpoint, the breed will reach desirable market weight and condition at as early an age as any existing breed, and there are few breeds that equal it in this respect. Therefore, from the standpoint of the farmer who is feeding hogs for the bacon trade, no breed excels the Yorkshire in point of early maturity. For the production of a fat carcass at an early age, however, the Large Yorkshire is not so well adapted. It is a special-purpose breed, and must be regarded as such.

From the fact that the Large Yorkshire grows rapidly and develops bone and muscle more readily than it develops fat, feeders are inclined to regard it as an expen-

sive hog to feed. Careful experiments go to show that such is not the case, and that, under most circumstances, it is capable of giving as good results for food consumed as any other breed. It is, perhaps, not so well adapted to grazing as some other breeds, and a hot sun is likely to blister the skin. It is probable, too, that an exclusive corn ration would not agree with it so well as with some other breeds that have been developed especially to consume corn. The Large Yorkshire has been developed in a country where a mixed ration is used, and where feeding in pens is largely practiced; and under such conditions it gives an excellent account of the food it consumes.

For quality of bacon, the Large Yorkshire is rivaled only by the Tamworth. The large proportion of lean to fat, the thick, fleshy belly and great length of side, render the breed peculiarly desirable from a bacon curer's and a consumer's standpoint. At the Provincial Winter Fair, held annually at Guelph, Canada, there is the largest exhibit of bacon carcasses of any show in existence, and the Yorkshires and Yorkshire grades always carry off the largest share of the prizes.

Large Yorkshire sows are very prolific, and are splendid nurses. The boars are exceptionally prepotent and stamp their character and color on their progeny to a remarkable degree, no matter what they are crossed with.

575. Distribution. — On the American continent, Large Yorkshires have made the greatest progress in Canada, owing to the fact that Canadians have been paying special attention to the production of bacon hogs. In the United States, their progress has been comparatively slow, and it is doubtful whether they will ever attain a high degree of popularity, especially in the corn-belt, where the fat type of hog seems better adapted to prevailing conditions.

Minnesota is the headquarters for the breed, and they are also found in North Dakota, South Dakota, Iowa, New York, Ohio, Michigan, Wisconsin, Virginia, Massachusetts and some other states. In Canada, they are to be found in every province, Ontario taking the lead.

Large Yorkshires occupy a very important place in Denmark, and there are comparatively few countries of any importance, from a live-stock standpoint, where the breed is not represented.

576. Organizations and records. — The American Yorkshire Club was organized in 1892, and the first herd-book was published in 1901. Five herd-books have been published, in which 22,000 animals are recorded. In Canada, Yorkshires are recorded in the Dominion Swine Breeders' Record. For further information regarding Canadian records, see under Berkshires.

Tamworth Swine. Plate XV.

By *G. E. Day*

577. Tamworth swine are of the bacon type, and as such have been accorded a high place by breeders. They are much more popular in Canada than in the United States.

578. History in England. — The Tamworth takes its name from Tamworth, in Staffordshire, England, but is also to be found in adjoining counties. It is of ancient and uncertain origin, and there seems to be no well authenticated account of where it came from. As first known, it was an extremely leggy, narrow type of hog, but it has been greatly improved during the past thirty years. Whether this improvement was wrought solely by selec-

tion, or whether cross-breeding was resorted to, is uncertain. Professor Long favors the theory that the Tamworth was crossed with some white breed, but apparently no proof exists as to the correctness or incorrectness of this claim. Although it is one of the oldest English breeds, it was not given a separate class at the Royal Agricultural Society's Show until 1885.

579. History in America. — Representatives of the Tamworth breed were brought to the United States nearly thirty years ago, but the breed does not make rapid progress. The long snout tends to prejudice the average farmer, and the fact that the production of bacon hogs receives little or no encouragement in the United States also tends to work against the general adoption of the breed.

Like the Large Yorkshire, the Tamworth was brought to Canada by the packers about 1888, with a view to improving the bacon qualities of Canadian hogs, and large numbers have been imported by Canadian breeders during the past twenty years. The Tamworth has not attained the degree of popularity in Canada that is enjoyed by the Yorkshire, although it is always well represented at the leading Canadian fairs.

580. Description. — According to the standard of excellence adopted by the National Pig Breeders' Association of Great Britain, the Tamworth should have "golden red hair on a flesh-colored skin, free from black." However, the shade of red varies considerably in individuals, and a chestnut shade is very common. In aged animals, it is not uncommon to see such a dark shade of chestnut that the casual observer might mistake it for a dull black. The snout is long and straight, and the ear large, and somewhat more pointed than the Yorkshire ear. The ears should be firmly attached to the head. The jowl is

narrower and lighter than that of the Yorkshire, the neck and shoulder are light, the back and loin of medium width, and the side of good length and only moderately deep. Deficiency of ham is a common weakness of the Tamworth. Since the Tamworth belongs to the bacon type, it is not desirable that it should have a heavy, fat ham like a fat hog; but the ham is often lacking seriously even from a bacon standpoint, and the breeders are making an effort to strengthen this point. The Tamworth is a large hog, strong in the bone, and looks leggy beside a hog of the fat type. The Tamworth and Large Yorkshire are similar in size, and are the two leading breeds of the bacon type (Plate XV).

581. Uses of Tamworth hogs. — The Tamworth is especially adapted to the production of bacon. Its light shoulder, neck and head, its good length of side, and its tendency to produce a large proportion of lean to fat, render it well suited to the bacon curer's requirements. Being a large breed, and strong in the bone, it has become popular for crossing on finer and fatter breeds in districts where it is well known. A cross between the Tamworth and the Berkshire is very popular in Canada.

As to early maturity, it is similar to the Large Yorkshire. For producing fat carcasses at an early age, it is unsuitable, as this is not the purpose for which it is bred. It will reach suitable weight for the bacon curer, however, at as early an age as any of the fat breeds, and will not carry the excessive fat which renders the fat breeds unsuitable for bacon purposes. For bacon-production, therefore, it matures early, and it is from the bacon standpoint that the Tamworth must always be judged.

There is a popular belief among farmers that the Tamworth does not make economical use of food. A good

deal of this prejudice is due to the appearance of the animal, and the man who is used to the short, thick, fine-boned type of hog, finds difficulty in reconciling himself to a hog of Tamworth type. Experiments show, however, that the Tamworth is capable of making good use of the food it consumes, and that it compares very favorably with other breeds in this respect. Like the Yorkshire, it is rather better adapted to pen feeding than to pasture. It has been impossible to secure much information regarding its ability to stand exclusive corn-feeding. Available information indicates that the breed is not particularly well adapted to this purpose.

It is asserted by some persons that Tamworths produce higher class bacon than any other breed, but this is too sweeping an assertion, and when they have come together in dressed-carcass competitions, the Large Yorkshire has won the largest share of prizes. There is no question, however, that the Tamworth produces excellent bacon, which is well mixed with lean of fine quality. The Large Yorkshire and Tamworth are the only strictly bacon breeds with which we are familiar in America.

Tamworth sows are prolific and are good mothers. The boars are prepotent, but perhaps scarcely equal to the Large Yorkshire in this respect. According to Shaw, the Tamworth as compared with the Chester-White shows greater adaptability, is more active as a grazer, more hardy, and produces a superior quality of bacon. The Chester-White is heavier at maturity and ready for slaughter at an earlier age.

582. Distribution. — As already stated, the Tamworth has not made rapid progress in the United States, although representatives are to be found in Illinois, Kentucky, Iowa, Kansas, Texas, Wisconsin and Ohio. In Canada,

it is more numerous in Ontario than in any other province, but it is to be found in practically every province. England and Canada are the two leading countries in the production of this breed.

583. Organizations and records. — The American Tamworth Swine Record Association was organized in 1897. The first volume of the herd-book was published in 1903. In Canada, Tamworths are recorded in the Dominion Swine Breeders' Record.

In Great Britain, Tamworth swine are recorded in the herd-book of the National Pig Breeders' Association.

CHAPTER XVIII

LESSER KNOWN BREEDS OF SWINE

By *G. E. Day*

584. There are certain little-known breeds or types of hogs that are of interest historically, or in restricted areas. In order to make the discussion of swine in this book more nearly complete, brief notes on several of these breeds are introduced.

585. Historic breeds. — It is an old opinion, apparently well substantiated, that the English swine, from which the modern American types are derived, sprang from breeds introduced from the East, as Chinese, Neapolitan and Siamese pigs. Even in such a noted live-stock country as Great Britain, the pigs of less than a century ago were, on the whole, a rather undesirable lot, according to descriptions that have been handed down to us. Long legs, general coarseness and slow fattening propensities were then commonly characteristic of British breeds. It is out of the question, even if it were desirable, to attempt to trace all the steps that led to the establishment of British breeds as we know them to-day, but there is no doubt that much of the improvement came from the introduction of foreign breeds, which were crossed on the native stock. Although these foreign breeds are now practically unknown in Great Britain and America, there are three breeds whose influence has been so far-reaching as to render them worthy of at least a passing notice.

The introduction into England of these Chinese, Neapolitan and Siamese pigs wrought a revolution among the earlier types of swine, and the crossing and inter-crossing of various types, which followed the introduction of foreign blood, and which is too intricate and too little known to admit of complete investigation, resulted eventually in the English breeds of the present day.

Chinese, Neapolitan and Siamese swine were also imported into the United States. The great bulk of American foundation stock came from Great Britain, especially England, and as was the case in England, the use of Chinese, Neapolitan and other similar blood, followed by the crossing of various local types, has led to the establishment of what are known as American breeds.

586. Chinese swine. — Youatt writes of these swine as follows: "There are two distinct varieties, the white and the black; both fatten readily, but from their diminutive size attain no great weight. They are small in limb, round in body, short in the head, wide in the cheek, and high in the chine; covered with very fine bristles growing from an exceedingly thin skin; and not peculiarly symmetrical, for, when fat, the head is so buried in the neck that little more than the tip of the snout is visible. The pure Chinese hog is too delicate and susceptible to cold ever to become a really profitable animal in this country (England); it is difficult to rear, and the sows are not good nurses, but one or two judicious crosses have in a manner naturalized it. . . . Many valuable crosses have been made with these animals; for the prevalent fault of the old English breeds having been coarseness of flesh, unwieldiness of form, and want of aptitude to fatten, an admixture of the Chinese breed has materially corrected these defects." Youatt's description is so clear that it

requires no explanation, and it is easy to understand how this extremely fine hog would help to correct the faults of the coarse English pigs.

587. Neapolitan swine. — This breed came from the country about Naples in Italy, and was also of the extremely fine-boned, easily fattened type. It is especially noted for the part it played in the formation of what is now known as the Essex breed, although other breeds were influenced, either directly or indirectly, by the blood of this remarkably quick-maturing breed.

588. Siamese swine. — A. B. Allen, who bred Siamese swine many years ago, describes them in part as follows: "They varied in color from deep, rich plum to dark slate and black; had two to three white feet, but no white on the legs or other parts of the body. The head was short and fine, with a dished face and rather thin jowl; ears short, slender and erect; shoulders and hams round, smooth and extra large; back broad and slightly arched; body of moderate length, deep, well ribbed up and nearly as round as a barrel; . . . legs fine and short; hair soft, silky and thin; no bristles, even on boars; . . . flesh firm, sweet and very tender, with less lean than in the Berkshire."

589. Large Black swine. — The Large Black, as its name implies, is a large breed, all black in color, and possessing very large drooping ears. In general conformation it approaches the bacon type, having a good length of side, medium width of back and shoulder, a rather light neck and jowl, and fairly heavy bone.

The origin of the breed is not well known, but it has been bred for a great many years in the east and south of England. It is hardly known outside of England, and is not widely distributed even in England, being confined

mainly to the southern part of the country. Some years ago, representatives of the breed were brought to the Central Experimental Farm, Ottawa, Canada, but did not prove very satisfactory. At present, the breed is practically not represented on the American continent.

The main claims for the Large Black are its bacon qualities, its fecundity and its value as a scavenger. Its bacon is highly esteemed in England, containing, as it does, a large percentage of lean. It is worthy of note, however, that at Ottawa the bacon of the Large Black was not equal to that of the Large Yorkshire or the Tamworth. The sows are excellent nurses, and the breed is regarded as a first-class farmer's breed in England.

The interests of the breed in England are looked after by "The Large Black Pig Society of Great Britain." This organization publishes the only herd-book for the breed.

590. Middle White or Middle Yorkshire swine (Plate XVI. Fig. 98). — The Middle White, as the name implies, is intermediate in type between the Large White and the Small White. It is recognized in England as a distinct breed, but it is a difficult breed to describe, because of its variations. Some representatives of the breed might easily pass as Large Whites, and from this extreme they shade down nearly all the way to the Small White type. There is little doubt that many so-called Large White pigs carry some Middle White blood, and that many Middle Whites, or pigs containing a large percentage of Middle White



FIG. 98. — Middle White boar.

blood, have been brought to America and passed as Large Whites. Generally speaking, they are smaller than the Large Whites, have a shorter side, shorter leg, finer bone and a heavier neck and jowl. They usually have a shorter snout than the Large White, and have more dish in snout and face. They belong to the fat type of hog.

The Middle White originated from a cross between the Large White and the Small White breeds. Even at present, pigs may appear in Large White litters that are classed by their breeders as Middle Whites, so that it sometimes happens that Large Whites and Middle Whites may come from the same litter, especially in those herds in which Middle White blood is occasionally used to refine the Large White. Sometimes Middle Whites are produced by one cross of Small Whites on Large Whites, and animals produced in this way should scarcely be regarded as a distinct breed.

The Middle White is unknown outside of its native country, and if any have been brought to America, they were introduced under the name of Large Yorkshire.

The utility of the Middle White is necessarily limited. The practice of crossing, followed by many breeders, has told against the usefulness of the breed. Middle Whites which have been bred pure for a number of generations would no doubt prove satisfactory, but so many of them possess recent crosses of other blood, that the breed as a whole lacks prepotency and trueness to type. The mixing of Middle White blood with that of Large White, as practiced by many English breeders, cannot be too strongly condemned. A so-called Large Yorkshire boar produced in this way may look more attractive to the inexperienced breeder of Large Yorkshires than a pure Large Yorkshire, but he makes a very unsatisfactory sire.

Breeders of Large Yorkshires soon learn to avoid boars showing any evidence of Middle White blood.

591. Lincolnshire Curly-coated swine. — This breed takes its name from Lincolnshire, in England, where it has been bred for many years. Though an old breed, it did not receive recognition until within comparatively recent years. It has now a herd-book society of its own, and

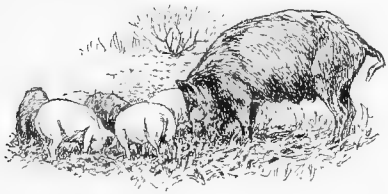


FIG. 99. — Razorback sow with litter.

is the most recent addition to the recognized pure breeds of swine in Great Britain.

The Lincolnshire Curly-coated is a large white breed, with curly hair, and long thin ears which cover the eyes and snout. It is claimed for these pigs that they are hardy, thrifty, quick growers, and that the sows are prolific, and good milkers.

As yet, they are not much known outside of their native county.

592. Razorback swine (Fig. 99). — Whether it is strictly correct to call the "Razorback" a distinct breed may be open to question, but since it represents a type of hog existing in some parts of the United States, it should receive passing notice.

The "Razorback" is characterized by long, coarse legs and snout; coarse ears, coarse skin and a bristly coat; narrow back, slab sides, no hams worth mentioning, and

an absence of any tendency to fatten. In spite of its undesirable qualities, it is more or less amenable to improvement, and some of the finer breeds, notably the Essex, have been crossed on it with a fair degree of success. Its hardiness and its ability to look after itself are its main recommendations.

There is little doubt that the "Razorback" is a degenerate descendant of pigs brought into the country by the earliest white settlers. Hunger, exposure and the necessity for looking after itself and foraging its own living have been the chief factors in evolving the type.

The "Razorback" is now found almost exclusively in a comparatively limited area of the South, and this area is becoming more and more restricted as improved agriculture advances. It is only a question of time until the type entirely disappears.

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